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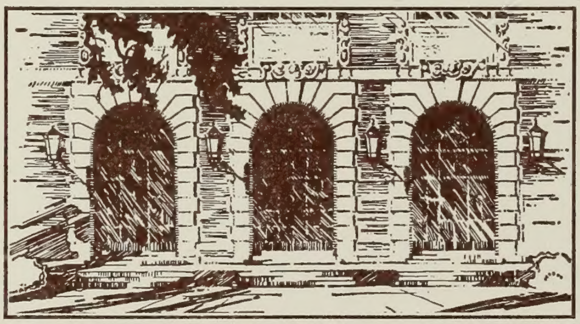

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# GASTROENTEROLOGY

# ABSTRACTS
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NATIONAL INSTITUTE OF ARTHRITIS AND METABOLIC DISEASES

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# GASTROENTEROLOGY ABSTRACTS AND CITATIONS

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## LANGUAGE ABBREVIATIONS

| | | | |
|---|---|---|---|
| Afr. | Afrikaans | It. | Italian |
| Ar. | Arabic | Jap. | Japanese |
| Bul. | Bulgarian | Kor. | Korean |
| Ch. | Chinese | Latv. | Latvian |
| Cz. | Czech | Lith. | Lithuanian |
| Dan. | Danish | Nor. | Norwegian |
| Dut. | Dutch | Pol. | Polish |
| E. | English | Por. | Portuguese |
| Eston. | Estonian | Rum. | Rumanian |
| Fin. | Finnish | Rus. | Russian |
| Fl. | Flemish | Ser. | Serbo-Croatian |
| Fr. | French | Sl. | Slovak |
| Ger. | German | Sp. | Spanish |
| Gr. | Greek | Sw. | Swedish |
| Heb. | Hebrew | Th. | Thai |
| Hun. | Hungarian | Turk. | Turkish |
| Ic. | Icelandic | Uk. | Ukrainian |
| In. | Indonesian | Viet. | Vietnamese |

## ABBREVIATIONS USED IN ABSTRACTS

| | | | |
|---|---|---|---|
| ACTH | adrenocorticotropic hormone | mC, μC | milli-, microcurie(s) |
| ADP | adenosine diphosphate | mg | milligram(s) |
| AMP | adenosine monophosphate | min | minute(s) |
| ATP | adenosine triphosphate | ml | milliliter(s) |
| BSP | sulfobromophthalein | mm | millimeter(s) |
| C | degrees centigrade | MTD | maximum tolerated dose |
| cm | centimeter(s) | ng | nanogram ($10^{-9}$) |
| CNS | central nervous system | pg | picogram ($10^{-12}$) |
| cpm | counts per minute | p.o. | orally |
| DNA | deoxyribonucleic acid | ppm | parts per million |
| e.g. | for example | r | Roentgen |
| g | gram(s) | RBC | red blood cells (erythrocytes), red blood count |
| μg | microgram(s) | | |
| hr | hour(s) | resp. | respectively |
| i.m. | intramuscular | Rev. | review (only in citations) |
| i.p. | intraperitoneal | RNA | ribonucleic acid |
| IU | international unit(s) | s.c. | subcutaneous |
| i.v. | intravenous | sec | second(s) |
| kg | kilogram(s) | SGOT | serum glutamic-oxalacetic transaminase |
| $LD_{50}$ | median lethal dose(s) | SGPT | serum glutamic-pyruvic transaminase |
| LDH | lactic acid dehydrogenase | U | unit(s) |
| m | meter(s) | UV | ultraviolet |
| M | molar | WBC | white blood cells (leukocytes), white blood count |
| mEq | milliequivalent(s) | | |
| mM | millimolar | yr | year(s) |
| μM | micromolar | | |

# PRE-CLINICAL SCIENCES

## MORPHOLOGY, CELLULAR STRUCTURE AND HISTOCHEMISTRY

**5089 SERUM IMMUNOGLOBULINS AND ORGAN-SPECIFIC, CELLULAR HYPERSENSITIVITY IN ULCERATIVE COLITIS AND CROHN'S DISEASE.** *(E.)* Weeke, B. (Rigshopitalet, Copenhagen, Denmark) and G. Bendixen. *Acta Med Scand* 186(1-2):87-91, 1969.

The serum concentrations of IgG, IgA, and IgM were measured in 22 patients with ulcerative colitis and in 23 patients with Crohn's disease. The concentration of IgG was significantly higher in ulcerative colitis than in Crohn's disease, but no major differences between the two conditions or alterations from the normal were shown. In Crohn's disease the serum concentration of IgG was lower in patients treated than in patients not treated with glucocorticoids. A similar difference was not found in ulcerative colitis. In a parallel study on the same patients the *in vitro* inhibition of leukocyte migration induced by jejunoileal and colonic mucosa components was examined. A reactivity, which is probably an *in vitro* correlate to organ-specific, cellular hypersensitivity to intestinal mucosa components, was demonstrated in a majority of the patients with ulcerative colitis, whereas patients with Crohn's disease did not differ significantly from controls. There was no correlation between the serum concentration of the various immunoglobulins and the result of the leukocyte migration test. As important fluctuations in production catabolism, extravascular deposit, and loss of immunoglobulins may be concealed behind comparatively normal serum immunoglobulin concentrations, more conclusive results may be gained from examinations which include metabolic studies of the immunoglobulins.

**5090 EPITHELIAL CELL SWELLING DURING INCUBATION OF RAT SMALL INTESTINE *IN VITRO*.** *(E.)* Jackson, M. J. (George Washington U., Med. Ctr., Washington, D. C.) and M. M. Cassidy. *Experientia* 25(5):492-493, 1969.

Small intestine fluid uptake was measured as an increase in the weight of everted sacs of rat small intestine after incubation in a solution containing either a metabolizable substance (glucose) or an osmotic inhibitor (mannitol). Weight changes were correlated with phase contrast microscopic findings. Fluid uptake correlated with the height ($p < 0.001$) was found in relating the calculated cell volume (based on the assumption that the cell is a right cylinder) and the fluid uptake.

**5091 SPECTRUM OF MINOR HISTOLOGIC ALTERATIONS IN LIVERS OBTAINED FROM MEDICO-LEGAL AUTOPSIES.** *(E.)* Banerji, L. (All-India Inst. Med. Sci., New Delhi), S. K. Sood and N. C. Nayak. *Indian J Path Bact* 12(1):8-13, 1969.

The range and variety of histological alterations in the liver were studied in 322 medico-legal autopsies. Inflammatory cellular infiltrates of varying degree were seen in 40% of these. Severe inflammation was often associated with tuberculosis of lungs or liver. Portal scarring was in only 6% cases. Granulomas were detected in 8% and in a quarter of these there was associated pulmonary tuberculosis. Fatty change was observed in 21%. Other minor changes were nuclear vacuolation and amyloid infiltration.

**5092 ORGANIZATION OF THE MUSCULAR WALL OF THE HUMAN COLON.** *(E.)* Pace, J. L. (St. Mark's Hosp., London, England) and I. Williams. *Gut* 10(5):352-359, 1969.

Two independent investigations of the muscular layer of the human colon are presented in a single coordinated account. The conclusions represent the subjective recognition of organizational patterns in formol-saline-fixed operative and post-mortem specimens, mainly from the middle-aged and elderly, and assessed predominantly by dissecting microscope techniques. The circular muscle is an expanding meshwork of interlinked bands 1 mm wide. Each band is divisible into fasiculi 50-200 $\mu$ in width. Longitudinal muscle is continuous over the whole colon in the intertenial areas as a thin banded structure. The teniae have a banded structure in the outer half but in the deeper layers are in groups of cells separated off giving a mosaic appearance in transverse section. This level contains much connective tissue and the teniae are more closely woven solid structures than circular muscle. The circular muscle is firmly attached to the underside of the teniae, more so at its edges, by connective tissue and muscle cell groups. A brief study of distended and collapsed colons showed a number of features relevant to the pathological concepts of hypertrophy and hyperplasia. In the muscle layer no explanation could be found for the anatomy of haustration, the origin of diverticular sacs or the sequential nature of colon contractions.

**5093 STUDIES ON HUMAN GASTRIC INTRINSIC FACTOR. II. *IN VITRO* ASSAY OF HUMAN GASTRIC JUICE AND PURIFIED HUMAN INTRINSIC FACTOR FOR INTRINSIC FACTOR ACTIVITY.** *(E.)* Morishita, R. (Fac. Med., Kyoto U., Japan). *J Vitamin (Kyoto)* 15(2):95-103, 1969.

Everted sacs of guinea pig intestine were used to assay intrinsic factor activity of purified human gastric intrinsic factor when pernicious anemia patients or totally gastrectomized patients were not available. This purified gastric intrinsic factor was found to be active and the activity was destroyed by heating and by peptic digestion. Gastric juice from 3 patients with histamine-fast anacidity without pernicious anemia were confirmed to have intrinsic factor by this *in vitro* assay method. Gastric juice from 3 patients with non-Addisonian megaloblastic anemia showed greater uptake of $^{57}$Co-B$_{12}$ with the everted sac than controls in which the sac was incubated with $^{57}$Co-B$_{12}$ alone, showing the presence of intrinsic factor in the gastric juice. Gastric juice from pernicious anemia patients showed a rather suppressive effect on $^{57}$Co-B$_{12}$ uptake in the sac as compared with the uptake in controls. The implications of the presence of a substance inhibiting B$_{12}$ uptake in the gastric juice of pernicious anemia patients were discussed.

**5094 STUDIES ON HUMAN GASTRIC INTRINSIC FACTOR. III. IMMUNOLOGICAL OBSERVATIONS OF VITAMIN B$_{12}$ BINDERS IN HUMAN GASTRIC JUICE AND OTHER BODY FLUIDS.** *(E.)* Morishita, R. (Fac. Med., Kyoto U., Japan). *J Vitamin (Kyoto)* 15(2):104-115, 1969.

Purified intrinsic factor obtained from normal human gastric juice by sequential column chromatography using Sephadex G-100 gel, DEAE-cellulose and Sephadex G-50 gel, was further analyzed to evaluate its purity by immunodiffusion, immunoelectrophoresis and autoradiography. Antisera were produced after successive injections of the purified materials with Freund's complete adjuvant. Purification was achieved by these methods. Intrinsic factor was not detected in the gastric juice of pernicious anemia patients. Other human body fluids and tissues, such as saliva, bile, sera and liver homogenates, were shown to have no intrinsic factor. Peptic and α-chymotryptic digestion destroyed the $B_{12}$ binding capacity of human gastric intrinsic factor, but the effect of tryptic digestion when tested by radioimmunodiffusion, was not marked.

5095 **AUSTRALIA ANTIGEN IN ACUTE AND CHRONIC LIVER DISEASE.** *(E.)* Wright, R. (Yale U. Sch. Med., New Haven, Conn.), R. W. McCollum and G. Klatskin. *Lancet* 2(7612):117-121, 1969.

The sera of 389 patients with biopsy-documented acute and chronic liver disease and of 135 healthy controls were tested for Australia (Au) antigen by a modification of the micro-Ouchterlony double-diffusion technique. The 2 sera used as antibody, which contained a high titer of anti-Au, were obtained from a multiply-transfused hemophiliac and a chronic-hemodialysis-unit nurse who had been exposed to viral hepatitis, but had never had the disease. These anti-Au sera, when tested against reference sera containing Au antigen, gave reactions of identity with human and rabbit anti-Au sera and human anti-SH serum. Au antigen was detected in the serum of 46 (52%) of 88 patients with acute viral hepatitis, 11 (38%) of 29 with prolonged viral hepatitis, 6 (25%) of 24 with chronic active hepatitis, but in none of the 135 controls and in only 3 of the remaining 248 patients with other forms of acute chronic liver disease. In each of the latter 3 cases, Au antigen was detected in the serum a few days after multiple transfusions of whole blood. In viral hepatitis, Au antigen was encountered most frequently in infections of unknown type (67%), less commonly in "serum-hepatitis" infections (49%), and least commonly in "infectious-hepatitis" infections (25%). The data confirm previous reports that Au antigen can be detected in the serum of a high proportion of patients with acute viral hepatitis, and demonstrate that, in prolonged viral hepatitis, the antigen may persist for months or yr, disappearing only when the disease becomes inactive. The data also attest to the specificity of the Au antigen for viral hepatitis, and provide evidence supporting the view that persistent infection with the hepatitis virus may play an important role in the pathogenesis of chronic active hepatitis.

5096 **STUDIES ON ORTHOTOPIC CANINE LIVER HOMOTRANSPLANTATION. IMPROVEMENT OF TECHNIQUE AND REJECTION AND IMMUNOSUPPRESSION OF THE TRANSPLANTED LIVER.** *(Jap.)* Nakai, N. (Nara Med. U., Japan). *J Nara Med Ass* 20(2): 159-177, 1969.

Orthotopic canine liver homotransplantation was carried out in 78 dogs with and without immunosuppressive treatment with azathioprine. Donor dogs were operated upon in normothermic conditions and the liver selectively perfused through the portal vein with cooled lactated Ringer's solution. This selective cooling of the donor liver resulted in a reduction of outflow block in the graft liver after reopening of the blood stream. All dogs not treated with azathioprine died within 10 days after operation; hepatic insufficiency was the cause of death in all those that survived more than 6 days. Liver function tests in these showed increased SGPT, SGOT, and alkaline phosphatase from 3-5 days after transplant and these increments were never reversed before death. Histological study of the hepatic homograph showed hepatic cell necrosis and infiltration of large lymphoid and plasma cells. In the dogs treated with the immunosuppressive agent, 11 survived an average of 13.6 days with a range of 2-61 days. The cause of death in the first 20 days was inflammation; e.g., peritonitis, pneumonia, liver abscess. The postoperative increases in SGOT and SGPT were less than in the untreated dogs, and alkaline phosphatase activity increased gradually. Histologically, there was less infiltration of large lymphoid and plasma cells. The levels of SGPT and SGOT increased in the dog which survived 61 days when the dose of azathioprine was reduced to 1.5 mg/kg/day.

5097 **ENZYME HISTOCHEMISTRY AND HORMONES OF THE DEVELOPING GASTROINTESTINAL TRACT OF THE CHICK EMBRYO. II. THE HISTOCHEMISTRY OF OXIDATIVE ENZYMES.** *(E.)* Baxter-Grillo, D. L. (U. Ibadan, Nigeria). *Histochemie* 19(2):129-134, 1969.

The presence of oxidative enzymes in the gastrointestinal tract was investigated in red chick embryos. The diphosphate nucleotide and the triphosphate nucleotide diaphorases were demonstrated as early as the eighth day in the stomach-complex and intestine and the intensity of the enzyme reactions was maximal in the cells nearest to the lumen. By the 17th day there was NAD diaphorase activity in the muscularis mucosa of the small and large intestines and in the submucosa of the large intestine. By the 17th day there was NADP diaphorase activity in the proventriculus. The activity of this enzyme in the muscle cells of the intestine became more intense from the 16th day onwards. Isocitric dehydrogenase, glucose-6-phosphate dehydrogenase and lactic dehydrogenase were demonstrated histochemically in the epithelial and muscle cells of both stomach-complex and intestine as early as the 6th day. The intensity of all reactions appeared to increase with the age of the embryo and reach maximum before hatching.

5098 **THE EFFECT OF METHOTREXATE ON RABBIT INTESTINAL MUCOSAL ENZYMES AND FLORA.** *(E.)* Achord, J. L. (Emory U. Sch. Med., Atlanta, Ga.). *Amer J Dig Dis* 14(5):315-323, 1969.

Twelve female rabbits (2-3 kg) were given methotrexate (5 mg/kg) i.v. for 4 days and compared to a total of 23 control animals for changes in the light and dissecting microscope appearance of the jejunal mucosa, mucosal lactase, maltase, sucrase, alkaline phosphatase, and succinic dehydrogenase activity, and changes in intraluminal flora. There were no changes in flora or histology, but statistically significant depression of lactase, maltase, and alkaline phosphatase occurred. Sucrase and succinic dehydrogenase depression was not significant. Lactase activity, in contrast to that of the other enzymes, was depressed by methotrexate, 5 mg/kg for 2 days. The mild derangement of metabolic integrity of the intestinal mucosa, as induced by small doses of methotrexate, does not result in qualitative or quantitative alteration of recoverable bacteria from the proximal intestinal lumen in rabbits.

## MORPHOLOGY, CELLULAR STRUCTURE AND HISTOCHEMISTRY

**5099 ON GLOBULAR ALBUMIN PRECIPITATIONS IN THE UNFOLDED DISSE'S SPACE AND IN THE LUMEN OF THE SINUSOIDS OF THE HUMAN LIVER.** *(Ger.)* Feyrter, F. (2nd U. Skin Clin., Vienna, Austria) and I. Leodolter. *Beitr Path Anat* 136(4):413-418, 1967.

In 23 deaths occurring during a 3-yr period the histopathological findings in the liver at autopsy revealed a condition frequently, and often incorrectly, called serous hepatitis (characterized by separation of the sinusoid wall from the liver cell trabecula with development of Disse's space, which appears either empty or containing fine protein precipitates). This change does not occur postmortem, but develops during the agonal period. Such changes are encountered at autopsy in more than 1/2 of the cases, but only infrequently in liver biopsies (whether performed for general or liver diseases). A less frequent form of so-called serous hepatitis shows globular protein precipitates in the autopsied liver. Histological and histochemical examinations alone cannot determine the specific structure or the cause of precipitate development. The changes may be due to the penetration of serum plasma protein, caused by oxygen deficiency as a result of retarded blood flow, or to other mechanisms of autolysis.

**5100 HISTOLOGICAL AND FINE STRUCTURAL ABNORMALITIES IN THE LIVERS OF NZB/NZW $F_1$ HYBRID MICE.** *(E.)* Chou, S. T. (Northwestern U. Med. Sch., Chicago, Ill.) and P. B. Herdson. *Brit J Exp Path* 50(3):250-256, 1969.

The livers of 20 female New Zealand Black NZB/NZW hybrid mice killed at 12, 24, 48 and 70 weeks of age showed distinctive morphological abnormalities which become more pronounced with age: focal necroses in the liver parenchyma, hyperplasia of Kupffer cells, the presence of plasma cells in hepatic sinusoids, and mononuclear cell infiltration around bile ducts in portal tracts. Fine structural changes include widespread dilatation of endoplasmic reticulum together with the presence of many cytolysosomes in hepatocytes. Such changes were not present in the livers of 20 female Strong A mice of comparable ages. Another factor in the natural history of NZB/NZW mice is thus added, and may serve as a basis for further studies of the livers of these interesting animals. (The hearts, stomachs and intestines from all mice of both strains appeared normal.)

**5101 HEPATIC PATHOLOGY IN RATS ON LOW DIETARY LEVELS OF DIMETHYLNITROSAMINE.** *(E.)* Terracine, B. (Med. Res. Counc. Lab., Carshalton, England), P. N. Magee and J. M. Barnes. *Brit J Cancer* 21(3):559-565, 1967.

The pathological changes in white rats kept for a lifetime on diets containing 2, 5, 10, 20 and 50 ppm dimethylnitrosamine (DMN) are described. The incidence of liver tumors fell rapidly when the dietary concentration of DMN was reduced from 50 to 5 ppm (10 of 12 rats vs 1 of 6 males or 4 of 62 females) a single rat on 2 ppm developed a liver tumor so that a no-effect level has not been established. There were no pathological changes in the liver other than tumors which provided a more sensitive index of exposure to DMN. No kidney tumors were seen in any rats.

**5102 GALACTOSE-INDUCED PANCREATIC DYSTROPHY OR PANCREATITIS. HISTOLOGICAL, HISTOCHEMICAL, AND ELECTRON OPTICAL STUDIES.** *(Ger.)* Putzke, H. P. (Inst. Gen. Spec. Pathol., U. Rostock, Germany) and A. Bienengräber. *Beitr Path Anat* 135:333-349, 1967.

Severe parenchymal damage was induced in the pancreases of about 2/3 of 30 male Wistar rats given 1-2 g/day of D-galactose i.p. for 5-10 days. The extent of structural change was independent of the dose of galactose administered. Primary damage was produced in the acinar epithelium. Electron microscope studies showed characteristic focal degradation of the cytoplasm and lysosomes which is considered to be a manifestation of the successful elimination of partial cell damage. Interstitial inflammation was produced by removal of sequestered constituents of the cytoplasm into the interacinar space and by postdystrophic necrosis of the acinar cells. Similar, but less severe, pancreatic changes were produced by feeding rats about 5 g/day of galactose for 10 days. Galactose loading had relatively little effect on enzymes in the glandular parenchyma. This galactose-induced pancreatitis is considered to be similar to ethionine-induced pancreatitis; both are postdystrophic or secondary.

**5103 MORPHOLOGY OF THE PANCREATIC ISLETS OF THE NON-DIABETIC ADULT CHINESE HAMSTER, *CRICETULUS GRISEUS*–LIGHT MICROSCOPICAL FINDINGS.** *(E.)* Boquist, L. (Inst. Pathol. II, U. Umeå, Sweden). *Acta Soc Med Upsal* 72(5-6):331-344, 1967.

Using histological and histochemical techniques and studying the morphological effects of alloxan administration $\beta$-, $\alpha_1$-, and $\alpha_2$-cells could be demonstrated in the pancreatic islets of nondiabetic Chinese hamsters. Isolated cells were also seen, possibly agranular. A rather distinct cellular topography was found: the $\beta$-cells were localized in the central part of the islets and the $\alpha_2$-cells more peripherally with the $\alpha_1$-cells in an intermediate position. Sulfide-silver and diathizone procedures showed that the islet parenchymal cells contain heavy metals, apparently zinc. By differential cell counting the ratio of $\alpha_1$-+$\alpha_2$- to $\beta$-cells was found to be approximately 1:4 and the ratio of $\alpha_1$- to $\alpha_2$-cells approximately 1:2. The islets were found to be largest and most numerous in the head of the pancreas.

**5104 MORPHOLOGY OF THE PANCREATIC ISLETS OF THE NON-DIABETIC ADULT CHINESE HAMSTER, *CRICETULUS GRISEUS*. ULTRASTRUCTURAL FINDINGS.** *(E.)* Boquist, L. (U. Umeå, Sweden). *Acta Soc Med Upsal* 72(5-6):345-357, 1967.

Four cell types, $\alpha_1$-, $\alpha_2$-, $\beta$-, and agranular cells, were identified ultrastructurally in the pancreatic islets of the Chinese hamster. Identification was mainly by the number, size, and structure of their secretory granules and also on their rather distinct topographic distribution. Quantitative differences comparable to those found in the previous light microscopical work were also observed. Comparative aspects were also considered in the identification of the islet cells. By a modification of the sulfide-silver method for ultrastructural studies and a method for detecting acid phosphatase, the granular cell types were found to contain heavy metals, probably zinc, mainly in the secretory granules and only to a small extent in lysosome-like organelles. All the cell types contained lysosome-like organelles with acid phosphatase activity. Nerves, vessels, and possible evidences of secretory activity in the islets were also seen.

### 5105 OBSERVATIONS OF MITOCHONDRIA CONTAINING CRYSTALLINE-LIKE STRUCTURES IN SOME CONDITIONS OF HEPATIC PATHOLOGY. *(It.)*

Bianchi, F. B. (Inst. Clin. Gen. Med., U. Bologna, Italy), G. Bacci and A. M. Casali. *Arch Ital Mal Appar Dig* 35(1):5-16, 1968.

Examinations of liver parenchymal cells by electronmicroscopy showed giant mitochondria containing crystalline-like structures in 3 cases: a patient (female, 17 yr old) affected by acute hepatitis; a patient (male, 60 yr old) with atrophic cirrhosis of indefinite etiology; and a patient (female, 25 yr old) with diencephalic obesity. This last case did not present any hepatic trouble. The only histologic data of hepatocellular alteration common to all 3 patients was the presence of a steatosis, severe in the case of diencephalic obesity. The morphological modifications of the mitochondria were the same in all 3 cases. Their volume was increased, mainly in the cirrhosis, where the giant mitochondria were more numerous. The length was 4-5 $\mu$ and usually they had an elongated form. Neither a particular relation of the mitochondria with other cellular organelle, nor a constant localization in the cell was observed. Their matrix had a density equal to that of the normal mitochondria. Internally many lamellar crystalline-like structures were found, joined in groups, mainly multiple, without a constant localization. The cristae were of decreased length. The authors hypothesize the existence of a relation between such ultrastructural alterations and the presence of hepatic steatosis.

### 5106 ELECTRON HISTOCHEMICAL OBSERVATIONS OF POLYSACCHARIDE SYNTHESIZED BY ENZYME ACTIVITIES IN RAT LIVER CELLS. *(E.)*

Sasaki, M. (Kumamoto U. Sch. Med., Japan) and T. Takeuchi. *Acta Hist Cyto* 1(3):197-209, 1968.

Liver slices from albino rats were used to observe intracellularly synthesized polysaccharide from glucose-1-phosphate by phosphorylase and by amylo-1,4- and amylo-1,6-transglucosidase by histochemical and electron microscopical procedures. The polysaccharide stained red-purple with iodine under the light microscope. Completely digested by $\alpha$-amylase, it was incompletely digested by $\beta$-amylase. Under the electron microscope, newly synthesized polysaccharide appeared to be finer granules that $\beta$-granules of native glycogen. These new granules were present as amorphous aggregates or monoparticulates, but very often had a tendency to make irregular rosettes, different from native glycogen. They stained less with lead in density on electron microphotograph and were more sensitive to electron beam than native glycogen particulates.

### 5107 HISTOCHEMICAL AND BLOOD CHEMISTRY STUDIES OF THE RABBIT LIVER AFTER TEMPORARY ISCHEMIA. *(Ger.)*

Zimmermann, H. (Munic. Hosp., Frankfurt/M, Germany). *Beitr Path Anat* 138(2):209-222, 1968.

Liver biopsies were taken from 12 rabbits in which the hepatic artery, portal vein, and common bile duct had been clamped off for 15, 25, or 40 min. Controls consisted of 5 laparotomized rabbits, 3 in which bilateral renal ischemia had been induced for 1 hr, and 3 unoperated animals. Hepatic ischemia caused great dilatation of the central veins and pericentral sinusoids. Localized necrosis was found only in biopsies made 30 hr after ischemia of 25 min duration. Progressive decreases in the activity of succinate dehydrogenase and glyceraldehyde-3-phosphate dehydrogenase which were often localized in nature, were seen after 25 and 40 min of hepatic ischemia. The glycogen content of the liver decreased in all animals; the extent of this decrease depended upon the duration of hepatic ischemia. Glycogen began to decrease first in the periphery and then toward the center of the lobe. This decrease in the glycogen content of the liver was accompanied by an increase in the blood sugar level which was dependent upon the duration of hepatic ischemia. Blood sugar values reached a maximum 3-6 hr after ischemia and then decreased progressively until they were within the normal range. It is considered that both hepatic ischemia and an indirect stress reaction are the cause of cell damage in the liver.

### 5108 THE NATURE OF THE NERVE APPARATUS OF THE GALLBLADDER. *(Rus.)*

Grigor'iev N. G. (S. V. Kurashov Kazan Med. Inst., USSR). *Arkh Anat* 54(5):50-55, 1968.

A study of type 2 Dogel cells (giant and pseudo-unipolar neurons) in the gallbladder of dogs has shown that they are afferent neurons. Some of the processes of these cells have typical receptor endings. There were many nerve cells with broad neurofibrils which were located close to the neuron and occupied large areas of the mucosa. Type 2 Dogel cells underwent degenerative changes after removal of the posterior roots of the spinal cord from the 5th thoracic to the 2nd lumbar vertebra. Varicose changes were found after transection of the right vagus nerve under the diaphragm and the splanchnic nerve and removal of ganglia of the splanchnic plexus.

### 5109 HYPERTROPHY OF LIVER CELLS AND THEIR NUCLEI IN REGENERATING LIVERS FROM RATS OF DIFFERENT AGES. *(Rus.)*

Riabinina, Z. A. (Inst. Expt. Biol., Acad. Med. Sci. USSR, Moscow). *Biull Eksp Biol Med* 65(4):111-115, 1968.

Experiments were run on 113 female rats divided into 3 groups: immature rats (1 month old), sexually mature rats (4-5 months old), and old rats (12 months old). In experimental animals of all 3 groups 65% of the liver was removed by the procedure of Higgins and Anderson. Controls underwent laparotomy. The liver regenerated completely in 3 days in immature rats, in 2 weeks in sexually mature rats, and in 1 month in old rats. In immature rats the diameters of mononuclear hepatocytes and their nuclei were significantly larger than those of the controls 3, 5, and 14 days after hepatectomy. By 30 days after hepatectomy there was no difference between controls and hepatectomized rats. In sexually mature rats the diameters of these cells and their nuclei were significantly larger than those of the controls for the entire period of observation (3-30 days). In old rats the diameters of these cells and their nuclei were significantly larger than control values 3 days after hepatectomy, then gradually decreased and approached control values. Although cell hypertrophy is due to nuclear hypertrophy, it is difficult to say whether nuclear hypertrophy is caused by the presence of intermediate classes of nuclei with development of polyploidy or is only the result of functional changes without changes in the DNA content of regenerating liver cells.

**5110 INHIBITED OXIDATIVE PHOSPHORYLATION IN RAT LIVER MITOCHONDRIA OF CONGENITALLY JAUNDICED GUNN RATS AND THE PROTECTIVE ACTION OF HYDROXYETHYLRUTOSIDES AGAINST BILIRUBIN-INDUCED UNCOUPLING.** *(E.)* Fritz-Niggli, H. (Inst. Radiobiology U. Zurich, Switzerland). *Med Exp (Basel)* 18(4-6):239-246, 1968.

Oxidative phosphorylation was shown to be significantly depressed in isolated mitochondria from homozygous Gunn rats with pathological overcharge of nonglucuronized bilirubin from 6.75-14 mg% in serum. Several hydroxyethylrutosides (monodihydroxy-, trihydroxy-, and tetrahydroxy-) employed *in vitro* counteracted the inhibitory effect of 5-10$^{-5}$ M bilirubin on oxidative phosphorylation in isolated rat liver mitochondria. Injections of trihydroxyethylrutosides (300 mg/day, i.p. total dose up to 10.8 g) and of O-(β-hydroxyethyl) rutosides normalized the decreased P/O ratio. No toxic effects were noted.

**5111 THE HISTOLOGY OF THE GASTRIC MUCOSA IN PERNICIOUS ANEMIA.** *(E.)* Johansen, A. (Glostrup Hosp., Copenhagen, Denmark) and P. Rodbro. *Acta Path Microbiol Scand* 73(2):145-155, 1968.

The study group consisted of 43 patients with diagnostically confirmed pernicious anemia. There were 15 men, 28 women, with a mean age of 62 yr (range 37-82). The mean duration of the disease was 4 yr (from diagnosis) with a range of 0-29. A single gastric biopsy was taken from the corpus-fundus part of the stomach of each patient. Pathological findings were found in all biopsies. Five histological findings were selected as particularly important: the thickness of the mucosa, and the presence or absence of parietal cells, intestinal metaplasia, pseudopyloric glands, or inflammatory infiltration with lymphocytes and plasma cells. Of the 43 patients 14 had a mucosal thickness below 500 microns (μ), 20 between 500 and 800 μ, and 5 more than 800 μ. The thickness was indeterminable in 4. Parietal cells were absent in 30 and 24 of these had a mucosal thickness of less than 800 μ. Pseudopyloric glands were present in 38 of 43. Inflammatory infiltration with lymphocytes and plasma cells was absent in 1, slight in 12, pronounced in 26, and heavy in 4. The combined incidence of at least 3 of the 5 histological findings was: in 62% pseudopyloric glands present, intestinal metaplasia present, and gastric mucosa below 800 μ; in 56% pseudopyloric glands present, gastric mucosa below 800 μ, and parietal cells absent; in 49% intestinal metaplasia present, conspicious inflammatory infiltration present, and gastric mucosa below 800 μ. The degree of histological abnormality varied widely. The extremes are illustrated in figures. Criteria for classification were established and applied. A "very severe atrophic gastritis" was found in 33%; "gastric atrophy" in 2-28%. No specific changes were found in the pernicious anemia patients when compared with the histological changes in biopsies from nonpernicious anemia patients with gastritis.

**5112 SKIN PAIN IN PORPHYRIA.** *(E.)* Findlay, G. H. (Sect. Dermatology U. Pretoria, South Africa). *S Afr Med J* 42(6):129-132, 1968.

The histopathology of light reaction in phylloerythrin porphyria was observed in an adult merino wether after the administration of 600 mg/kg icterogenin. A total of 12 g in diluted ethanol was given intragastrically. Jaundice was intense by the 4th day and the sheep was then exposed to full summer sunlight for 2 hr in the late morning. Six Schott filters (50 x 50 x 2 mm) were applied over a clipped area of the back. The sheep showed marked discomfort and restlessness after 2-30 min. During the next 3 days the jaundice diminished, but severe facial edema developed and the irradiated patches on the back became red. Death occurred on day 7 and the irradiated skin on the back was removed and studied. Epidermal changes consisted of liquefaction of the basal and suprabasal cells, with some intercellular edema. There was cloudiness and shredding of the cytoplasm. The nuclei of these cells showed a range of changes from karyolysis to karyorhexis with preceding swelling of pyknosis resp. The horny layer was unchanged. Upper dermal changes, when mild, consisted of breakdown of fibrocytes which released trails of nuclear material in between the collagen bundles. Endothelial cells showed similar damage short of actual breakdown. No edema was seen. In severer reactions there was some polymorph cell emigration. The mid-dermis reacted principally with vascular congestion, leukocyte emigration and cellular breakdown. This was noted with the longer, more penetrating rays. No reactions from any fatty substance which has been claimed to be responsible for skin pain could be found or produced. The evidence failed to support the concepts of cell necrosis, kinin production or lysolecithin liberation as being responsible for the skin pain in these types of porphyria. No evidence for a biochemical mechanism outside the nervous system could be found. It may be that light produces pain directly by acting on photosensitized nerve endings.

**5113 ELECTRON MICROSCOPIC STUDY OF MOUSE LIVER AFTER ADMINISTRATION OF SODIUM DEHYDROCHOLATE.** *(E.)* Yokota, S. (1st Dept. Anat., Shinshu U., Matsumoto, Japan) and T. Nagata. *Med J Shinshu Univ* 13(4):207-239, 1968.

Fifteen male mice each weighing 15-20 g were divided into 3 groups: the first group was sacrificed without treatment as a control, while the second and the third groups were injected with 1 ml of 10% sodium dehydrocholate s.c. and sacrificed 30 min and 60 min after injection, resp. The livers were removed, fixed doubly with glutaraldehyde and osmium tetroxide, embedded in Epon, sectioned, stained and examined with an electron microscope. The second group showed alterations of fine structures of hepatic cells such as follows: mitochondrial swelling, slight dilatation of rough-surfaced endoplasmic reticulum, decrease of glycogen and lysosomes, striking appearance of lipid droplets, development of the Golgi complex which contained dense granules, enlargement and irregular transformation of nuclei, and increase in number and enlargement of nucleoli. The lumen of the bile canaliculi was enlarged. Pinocytotic vesicles were frequently observed in the ectoplasmic zone of the hepatic cells bordering the space of Disse. In the third group, mitochondria were swollen to about 2 times that of the control, and dividing mitochondria were frequently seen. The Golgi complexes were well developed and multiplied, and contained small granular substances in their dilated sacs. The rough-surfaced endoplasmic reticulum was dilated further, and free ribosomes increased in the cytoplasmic matrix. Some of the cisternae contained dense material. Lysosomes were further diminished and their electron density was lowered. Glycogen and lipid droplets were seldom seen. The form of the nucleus tended to be spherical, but its surface irregularity remained. Amitotic figures were occasionally observed. The number of nucleoli in a nucleus was reduced, but their enlargement was not altered. The lumen of the bile canaliculi returned to control values. Pinocytotic vesicles facing the space of Disse increased. Hepatic cells in experimental choleresis incorporate substances from the space of Disse by pinocytosis, transfer them into the rough-surfaced endoplasmic reticulum and further into the Golgi complex where they are condensed, and finally release them into the bile canaliculi.

5114 KARYOMETRY AND INTERKARYOMETRY IN VIRAL HEPATITIS. *(Fr.)* Craciun, E. C. (Dr. V. Baves Inst., Bucharest, Romania) and C. Tasca. *Rev Int Hepat* 18(8):967-986, 1968.

Cytonuclear modifications were studied in histologic preparations of liver needle biopsies from patients with viral hepatitis. Maximum and minimum diameter, volume and surface were measured, and the internuclear distance in the tissue was determined. The results indicated an increase in the number of nuclei, of nuclear volume (212 $\mu^3$:normal value 137 $\mu^3$), and of small hepatocytes, with a decrease of intranuclear distance (1-7 $\mu$: normal value 4-8 $\mu$).

5115 THE LIVER IN WILSON'S DISEASE. SOME HISTOCHEMICAL AND HISTOLOGICAL ASPECTS. *(E.)* Dastur, D. K. (Indian Counc. Med. Res., J. J. Group Hosp., Bombay, India) and D. K. Manghani. *Indian J Path Bact* 10(2):177-183, 1967.

As part of a comprehensive investigation of Wilson's disease in 23 patients and some of their parents and sibs in 16 families; biopsy specimens of the liver from 10 of these patients and from 3 unaffected siblings were used for histopathological and histochemical study. Twelve were 6-18, and 1 was 25 yr old. In 12 the liver was palpably enlarged, with reduction of serum albumin, hypoproteinemia, and jaundice being present in some. With direct fixing of the tissue in rubeanic acid solution copper granules were detected in the liver cells in 6. These were sparsely or densely, evenly or unevenly distributed, and had no relation to the state of the cell. (Failure to detect copper granules in some of the remaining 4 cases may have been due to inadequate procedure wherein the tissue was not prefixed in rubeanic acid, formalin fixed sections failing to take the stain. None of the 3 unaffected sibs showed any granules, but 1 asymptomatic patient did.) The most frequent histological changes were interlobular fibrosis, degenerated "ghost" lobules with bile duct proliferation, intercellular reticulin increase, and glycogen infiltration of liver cell cytoplasm and nuclei. The overall picture indicated post-necrotic cirrhosis. These histological changes were observed in 2 of the 3 unaffected sibs, but not in the 1 case with no enlargement of the liver.

5116 STUDIES ON THE G CELLS OF THE PYLORIC MUCOSA, THE PROBABLE SITE OF GASTRIN SECRETION. *(E.)* Solcia, E. (Inst. Pathol. Anat., U. Pavia, Italy), G. Vassallo and C. Capella. *Gut* 10(5):379-388, 1969.

Samples of gastroduodenal mucosa and pancreas from guinea pigs, rabbits, dogs, cats, rats, mice, monkeys (*Macacus rhesus*) and man were studied under light and electron microscopy. Several endocrine cells were found in the gastroduodenal cells of the different species. Two of the cell types found were fully characterized: the argentaffin or enterochromaffin cell and the G cell. The enterochromaffin cells showed irregular, highly osmiophilic granules, a well-developed Golgi complex, small mitochondria, scattered free ribosomes, and few juxtanuclear arrays of endoplasmic reticulum; their distribution was variable according to the species examined. The G cells displayed all the features of cells secreting protein hormones; specific secretory granules of a protein nature, well developed ergastroplasma, and a prominent Golgi complex. The distribution of the G cells in different parts of the gastrointestinal mucosa as well as in different zones of the pyloric glands corresponded closely to the distribution of the hormone gastrin, suggesting that such a protein hormone may be secreted by the G cells. In part, the G cells showed staining and ultrastructure similarities with the D cells of the pancreatic islets, but clearly differed from enterochromaffin cells and other endocrine cells of the gastrointestinal mucosa.

5117 EXPERIMENTAL STUDIES IN ANIMALS OF "NET-NECROSES" (RETICULAR NECROSES) IN THE LIVER. *(Ger.)* Korb, G. (Pathol. Inst., U. Marburg, Germany), P. Gedigk, R. Müller and U. Müller. *Virchows Arch Path Anat* 347(4):357-368, 1969.

Resecting wedges of liver were taken from 8 rabbits at 5 min, 3, 24, 48, and 58 hr after the injection of 100 mg unconjugated bilirubin into the portal vein. The development and fate of the resulting reticular necroses (net-necroses) were followed. At 5 min there was a clearing of the cytoplasm with a decrease in its stainability. After 3 hr complete reticular necrosis had developed. In a majority of the foci the liver cells underwent dissolution and absorption, progressing from the center to the periphery with little inflammatory reaction. A transient hyperemia developed and occasionally the supporting reticulum network collapsed. Transitions to coagulation necroses were also evident and a secondary inhibition of bile occasionally became apparent. The cells initially destroyed and those that underwent a secondary coagulation were replaced by proliferation of neighboring cells, which process ultimately restored the original acinar structure. The net necroses were not irreversible, but degenerative changes necessitating only cell death. Net necroses are not the result of a specific injury to liver parenchyma, but they appear after different injuries (e.g., cholestasis, abnormal composition of bile and intrahepatic circulatory disturbances). Reticular necroses are a specific form of hydropic degeneration and are to be distinguished from vacuolar degeneration.

## MORPHOLOGY, CELLULAR STRUCTURE AND HISTOCHEMISTRY

5118 **STUDIES ON INDUCED CELLULAR AUTOPHAGY. II. CHARACTERIZATION OF THE MEMBRANES BORDERING AUTOPHAGOSOMES IN PARENCHYMAL LIVER CELLS.** *(E.)* Ericsson, J. L. E. (Karolinska Inst. Med. Sch., Stockholm, Sweden). *Exp Cell Res* 56(2-3):393-405, 1969.

5119 **ELECTRON MICROSCOPY OF THE HUMAN LIVER IN VIRUS HEPATITIS.** *(Ger.)* Merker, H. J. (Anat. Inst., Free U. Berlin, Germany) and P. Körtge. pp. 131-142 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5120 **ULTRASTRUCTURE OF LIVER IN INTRAHEPATIC AND EXTRAHEPATIC CHOLESTASIS.** *(E.)* Schaffner, F. (Mount Sinai Sch. Med., New York, N.Y.). pp. 143-149 in *Ikterus,* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5121 **HISTOLOGY OF LIVER PUNCTURE AND JAUNDICE.** *(Ger.)* Bianchi, L. (Basel, Switzerland) and R. Meinecke. pp. 351-357 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York F. K. Schattauer Verlag, 1968. 492 pp.

5122 **CONTINUOUS PRESSOR EFFECT ON BILIARY TRACT EPITHELIUM.** *(Ger.)* Becker, V. (Karlsruhe, Germany). pp. 362-363 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5123 **HISTOCHEMISTRY OF BILE PIGMENTS IN LIVER BIOPSIES.** *(E.)* Desmet, V. (Louvain, Belgium). pp. 358-362 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5124 **ABERRATIONS OF THE BILIARY PASSAGES ON THE SURFACE OF THE LIVER AND GALL-BLADDER AND IN THE GALL-BLADDER WALL.** *(E.)* Missen, A. J. B. (St. Bartholomew's Hosp., London, England). *Brit J Surg* 56(6):427-431, 1969.

5125 **OSMIUM BINDING TO THE SURFACE COAT OF INTESTINAL MICROVILLI IN THE CAT UNDER VARIOUS CONDITIONS.** *(E.)* Pratt, S. A. (New Mexico Sch. Med., Albuquerque) and L. Napolitano. *Anat Rec* 165(2):197-209, 1969.

5126 **CHANGES IN THE DISTRIBUTION OF NEUTRAL LIPID IN LIVER OF TADPOLES AT VARIOUS STAGES IN THE DEVELOPMENT OF LARVAL LIFE.** *(E.)* Ghosh, R. (Dept. Animal Physiol., Bose Inst., Calcutta, India) and A. K. Medda. *Acta Histochem* 33(1): 95-100, 1969.

5127 **ELECTRONMICROSCOPIC FINDINGS IN ROTOR'S SYNDROME.** *(Ger.)* Molbert, E. (Inst. Microbiol., U. Freiburg, Germany). pp. 160-162 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5128 **ULTRASTRUCTURE OF THE LIVER IN HEMOLYTIC JAUNDICE.** *(E.)* Kent, G. (Northwestern U. Med. Sch., Chicago, Ill.). pp. 151-156 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5129 **THE DEVELOPMENT OF EXFOLIATIVE CYTOLOGY IN STOMACH CANCER DIAGNOSIS.** *(Rus.)* Vasilenko, V. K. and S. I. Rapoport. *Klin Med (Moskva)* 46(2):3-12, 1968.

5130 **ULTRASTRUCTURE OF THE LIVER IN CONSTITUTIONAL HEPATIC DYSFUNCTION AND CHRONIC IDIOPATHIC JAUNDICE.** *(E.)* Ichida, F. (Fac. Med. Niigata U., Japan), H. Sasaki, H. Funahashi and H. Tanaka. pp. 157-160 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5131 **POSTHEPATIC HYPERBILIRUBINEMIA IN RELATION TO MORPHOLOGY.** *(Ger.)* Wildhirt, E. (Kassel, Germany). pp. 187-190 *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5132 **ANESTHESIA AND STRESS ON THE LIVER. HISTOCHEMICAL EXPERIMENTS ON ANIMALS.** *(Ger.)* Shorow, I. S. (I. M. Sechenov Ist Med. Inst., Moscow, USSR) and G. G. Shdanow. *Munchen Med Wschr* 111(31):1574-1579, 1969.

5133 **THE HISTOTOPOGRAPHIC BEHAVIOR OF ACID PHOSPHATASE IN THE LIVER.** *(Ger.)* Kautzsch, E. (Munich, Germany). pp. 124-129 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5134 **ULTRASTRUCTURAL OBSERVATIONS IN THE HUMAN DUODENAL GLANDS.** *(It.)* Zaccheo, D. (Inst. Anat., U. Cagliari, Sardinia, Italy) and A. Riva. *Boll Soc Ital Biol Sper* 44(21):1775-1778, 1968.

5135 **INFLUENCE OF ASPIRIN AND PHENYLBUTAZONE ON RATE OF TURN OVER OF GASTRIC MUCOSAL CELLS.** *(E.)* Max, M. (Dept. Surg., U. Chicago, Ill.) and R. Menguy. *Digestion* 2(2):67-72, 1969.

5136 **THE COMPOSITION AND SOME STRUCTURAL FEATURES OF THE PRINCIPAL GASTRIC GLYCOPROTEIN.** *(E.)* Schrager, J. (Royal Albert Edward Infirm., Wigan, England). *Digestion* 2(2):73-89, 1969.

## MORPHOLOGY, CELLULAR STRUCTURE AND HISTOCHEMISTRY

5137 AMPULLA OF VATER. *(It.)* Peri, G. (Gen. Surg. Clin., U. Milan, Italy) and G. Trivellini. *Arch Ital Chir* 94(3):311-327, 1968.

5138 HISTOCHEMICAL FINDINGS IN THE HUMAN DUODENAL GLANDS. *(It.)* Sirigu, P. (Inst. Anat., U. Cagliari, Sardinia, Italy) and A. Riva. *Boll Soc Ital Biol Sper* 44(21):1773-1775, 1968.

5139 SENSORY INNERVATION OF THE SMALL INTESTINE IN THE CAT. *(Rus.)* Zlatitskaya, N. N. (S. M. Kirov Acad. Milit. Med., Leningrad, USSR). *Arkh Anat* 54(2):102-105, 1968.

5140 RECEPTOR NEURONS OF GANGLIA IN INTRAMURAL NERVE PLEXUSES OF THE LARGE INTESTINE IN THE CAT. *(Rus.)* Tikhonova, L. P. (S. M. Kirov Acad. Milit. Med., Leningrad, USSR). *Arkh Anat* 54(2):98-102, 1968.

5141 INTRAHEPATIC COURSE OF THE PORTAL VEIN. *(Sp.)* Gimenez, R. E. (Fac. Med., Natl. U. Córdoba, Argentina). *Rev Esp Enferm Apar Dig* 27(9): 1277-1280, 1968.

5142 HEXOKINASE ACTIVITY IN INTESTINAL MUCOSA OF HYPOPHYSECTOMIZED RATS. *(E.)* Havivi, E. (New England Med. Ctr. Hosp., Boston, Mass.) and R. Levitan. *Amer J Physiol* 215(2):330-333, 1968.

5143 EXPERIMENTAL INVESTIGATIONS ON IMMUNOPATHOLOGY OF THE COLON. *(Ger.)* Mitschke, H. (Pathol. Inst. U. Hamburg, Germany) and J. Kracht. *Beitr Path Anat* 136(3):261-283, 1967.

5144 THE EFFECTS OF ADENOSINE TRIPHOSPHATE AND HISTAMINE ON THE HEPATIC BLOOD FLOW. *(E.)* Furukawa, T. (Wakayama Med. Coll., Japan), M. Mori and K. Ohyama. *Wakayama Med Rept* 11(4): 133-142, 1967.

5145 EFFECT OF ETHANOL ON RAT LIVER. 4. THE INFLUENCE OF VITAMINS, ELECTROLYTES AND AMINO ACIDS ON THE STRUCTURE AND FUNCTION OF MITOCHONDRIA FROM RATS RECEIVING ETHANOL. *(E.)* Kiessling, K. H. (St. Göran's Hosp., Stockholm, Sweden) and L. Pilström. *Brit J Nutr* 21(3): 547-556, 1967.

5146 A STUDY OF SALMONELLA O ANTIGENS BY OUCHTERLONY'S AGAR DIFFUSION METHOD. *(E.)* Hornstein, L. (Cent. Lab., Kupat Holim, Haifa, Israel) and W. Hirsh. *Israel J Med Sci* 3(4):524-534, 1967,

5147 DEMONSTRATION OF TUMOUR-SPECIFIC HUMORAL ANTIBODY AGAINST AMINOAZO DYE-INDUCED RAT HEPATOMA. *(E.)* Baldwin, R. W. (U. Nottingham, England) and C. R. Barker. *Brit J Cancer* 21(4):793-800, 1967.

5148 MORPHOLOGIC CHANGES IN THE STOMACH FOLLOWING WANGENSTEEN'S METHOD OF GASTRIC COOLING. *(E.)* Vetner, M. (U. Arhus Inst. Pathol., Denmark), F. H. Sorensen and K. Tophoj. *Acta Chir Scand* 133(5):393-397, 1967.

5149 CONTRIBUTION TO THE STUDY OF THE ANATOMY *IN VIVO* OF THE HIATAL REGION. *(Sp.)* Dumas, E. J. *Bol Soc Cir Rosario* 34(7):311-323, 1967.

5150 ON THE GROWTH-STIMULATING AND GROWTH-INHIBITING SUBSTANCES OF THE LIVER AND THE SPLEEN. (*Rus.*) Konyshev, V. A. (Inst. Exp. Biol., Moscow, USSR). *Zh Obshch Biol* 28(1):110-115, 1967.

5151 ORGAN SPECIFIC ANTIGENS IN RAT LIVER. *(E.)* Emetarom, N. (Hebrew U. Hadassah Med. Sch., Jerusalem, Israel), D. Nelken and J. H. Boss. *Israel J Med Sci* 3(6):809-813, 1967.

5152 A TRANSJUGULAR PORTAL VENOGRAPHY AND RADIOLOGIC PORTACAVAL SHUNT: AN EXPERIMENTAL STUDY. *(E.)* Rösch, J. (U. California Los Angeles Sch. Med.), W. N. Hanafee and H. Snow. *Radiology* 92(5):112-1114, 1969.

5153 EVIDENCE FOR GASTRIC INTRINSIC FACTOR IN THE EEL (*ANGUILLA ROSTRATA*). *(E.)* Kaplan, M. E. (Washington U. Sch. Med., St. Louis, Mo.) and A. Stein. *Proc Soc Exp Biol Med* 131(3):790-792, 1969.

See also: 5092,5117,5206,5221,5227,5228,5247,5269,5280,5392,5393,5582

## ABSORPTION-EXCRETION

**5154 ACTIVE TRANSPORT OF L-GLUCOSE AND D-XYLOSE IN HAMSTER INTESTINE, *IN VITRO*.** *(E.)* Bihler, I. (Fac. Med., U. Manitoba, Winnepeg, Canada), N. D. Kim and P. C. Sawh. *Canad J Physiol Pharmacol* 47(6):525-532, 1969.

The mode of absorption of L-glucose and D-xylose was studied *in vitro* in preparations of hamster small intestine. Both sugars at low concentrations were actively transported from the lumen into the tissue. Their transport was $Na^+$-dependent and inhibited by ouabain, phlorizin, and competing sugars. $V_{max}$ for both sugars was $Na^+$-independent and identical with that for many other monosaccharides. The apparent $K_m$ was only 5 times (D-xylose) or 8 times (L-glucose) less in the presence than in the absence of $Na^+$ (in contrast to 130 times for D-galactose). This explains why active transport is limited in extent and observable only at low concentrations. Countertransport was demonstrated with both these weakly transported sugars in the presence of strongly transported sugars, e.g. D-glucose, which explains the apparent secretion of L-glucose in the kidney *in vivo*. The mode of transport of L-glucose and D-xylose is identical with that of other sugars.

**5155 ABSORPTION OF ETHANOL FROM THE STOMACH.** *(E.)* Cooke, A. R. (Royal Prince Alfred Hosp., Camperdown, New South Wales, Australia) and A. Birchall. *Gastroenterology* 57(3):269-272, 1969.

A total of 95 test meals of 350 ml containing phenol red, glucose (to delay gastric emptying), and 4 different concentrations of ethanol (0.79, 1.51, 2.93, and 5.58 g per 100 ml) were instilled via a gastric tube into the stomachs of 7 healthy male volunteers. The gastric contents were aspirated after 30 min and samples estimated for phenol red, ethanol, and acid concentrations. A direct linear correlation ($r = 0.95$, $P < 0.001$) was found between the concentration of ethanol ingested and the amount absorbed. Acid output in response to 0.79% ethanol was not further increased by increasing the concentration 7-fold.

**5156 FACTORS AFFECTING MUCOSAL WATER AND SODIUM TRANSFER IN EVERTED SACS OF RAT JEJUNUM.** *(E.)* Crocker, A. D. (Dept. Physiol. Biochem. U. Southhampton, England) and K. A. Munday. *J Physiol* 202(2):329-338, 1969.

Mucosal water and sodium transfer were measured in 15 cm everted sacs of male Wistar rat jejunum. There was no effect on mucosal water and sodium transfer when aldosterone was added to the incubation medium (Krebs bicarbonated Ringer). An 87% increase in mucosal water and sodium transfer was obtained in sacs prepared from animals maintained on a low sodium diet compared to sacs from animals on a normal diet. Injection i.p. of 5 μg aldosterone to animals maintained on a high sodium diet produced a significant increase in mucosal water and sodium transfer in sacs prepared 27 hr later. This increase was still present 36 hr after injection. The aldosterone-induced increase in mucosal water transfer was blocked if actinomycin D was administered one hr before the aldosterone injection. Aldosterone action on sodium and water transfer in rat jejunum is mediated by a primary action on protein synthesis and that the long delay can be explained in terms of gut morphology.

**5157 GAS IN THE INTESTINAL WALL AND PORTAL VENOUS SYSTEM IN INFANTS.** *(E.)* Miskin, M. (Hosp. Sick Child., Toronto, Canada) and B. J. Reilly. *Canad Med Ass J* 101(3):129-134, 1969.

Six newborns (2 male, 4 female) with hepatoportal pneumatosis were observed during a 3 yr period. Five cases were associated with enteritis or enterocolitis (2 recovered completely, 2 survived the acute phase but died of late complications and 1 died in the acute phase). One case was associated with an indwelling umbilical catheter. Plain films of the abdomen confirmed the presence of gas in the intestinal wall and portal system in each case. Gas bubbles within the bowel wall or within the portal venous system do not necessarily indicate a hopeless prognosis.

**5158 THE VITAMIN A ABSORPTION TEST. I. STUDIES ON CHILDREN AND ADULTS WITHOUT DISORDERS IN THE ALIMENTARY TRACT.** *(E.)* Kahan, J. (Sodersjukhuset, Stockholm, Sweden). *Scand J Gastroent* 4(4):313-324, 1969.

Standardized vitamin A absorption tests (352 in all) were performed on 187 children and 139 adults without disorders of the alimentary tract. Serum β-lipoprotein determinations were made on the last 163. Mean values and the normal limits for the fasting and the postabsorptive serum vitamin A levels were estimated. Both levels were found to vary considerably with age and serum β-lipoprotein level. The mean values were lowest for children, higher for adults with disorders in the locomotor system, and highest for adults with diabetes mellitus or atherosclerosis.

**5159 THE EFFECT OF HEMORRHAGE ON WATER AND ELECTROLYTE FLUX IN THE GASTROINTESTINAL TRACT OF THE DOG.** *(E.)* Hankes, G. H. (Coll. Vet. Med., Colorado State U., Fort Collins), A. W. Nelson and H. Swan. *Arch Surg (Chicago)* 99(1):33-39, 1969.

Water, chloride, and sodium movement in the gastrointestinal tract both before and after hemorrhage in 10 male Beagle dogs (10-17 kg) followed a similar pattern that resulted in a net influx in the stomach and a net outflux in the intestine (20 cm segments of jejunum and colon). Jejunal capacity to absorb fluid (lactated Ringer's solution) from the intestinal lumen was not depressed by hemorrhage; neither was the jejunum able to absorb an increased amount of available fluid even though the body was in dire need of it. Hemorrhage significantly depressed absorption of water, chloride, and sodium (lactated Ringer's solution) from the colon. Relative to hemorrhage, there was no significant change in the rate of $^{36}Cl$ movement from plasma to gut lumen. Jejunal transcellular chloride was part of the slowly equilibrating chloride space (greater than three hr). The movement of potassium into the stomach and out of the gut was significantly depressed by hemorrhage, and the direction of movement was reversed to influx in the colon.

## ABSORPTION-EXCRETION

### 5160 INTESTINAL VITAMIN $B_{12}$ ABSORPTION IN THE DOG. I. EVIDENCE AGAINST AN INTRINSIC FACTOR MECHANISM FOR $B_{12}$ ABSORPTION.

*(E.)* Yamaguchi, N. (New York Med. Coll., N. Y.), H. Weisberg and G. B. J. Glass. *Gastroenterology* 56(5):914-924, 1969.

Dog (mongrels, 10-20 g) gastric juice obtained from Heidenhain or Pavlov pouches and duodenal mucosal extracts were tested for their ability to promote intestinal absorption of radioactive vitamin $B_{12}$ *in vitro* on guinea pig and dog intestinal mucosa homogenates and everted dog jejunal and ileal sacs. The absorption by *in situ* dog ileal sacs of radio $B_{12}$ bound to dog gastric juice or duodenal mucosal extracts into blood and liver was further studied *in vivo* by means of a double label isotope technique. In all systems the absorption of $B_{12}$ alone was higher than that of $B_{12}$ bound to dog gastric juice or duodenal mucosal extracts, which rather inhibited $B_{12}$ absorption. Dog gastric juice and duodenal mucosal extracts do not seem to be endowed with intrinsic factor activity and physiological $B_{12}$ absorption in the dog intestine does not seem to be mediated by intrinsic factor.

### 5161 INTESTINAL VITAMIN $B_{12}$ ABSORPTION IN THE DOG. II. CHARACTERIZATION OF VITAMIN $B_{12}$ BINDERS IN DOG GASTROINTESTINAL MUCOSAE AND SECRETIONS.

*(E.)* Yamaguchi, N. (New York Med. Coll., N. Y.), H. Weisberg and G. B. J. Glass. *Gastroenterology* 56(5):925-935, 1969.

The secretory, immunological, electrophoretic, chromatographic, and physiological properties of the vitamin $B_{12}$ binders in dog gastric juice obtained from Heidenhain pouches and dog gastrointestinal mucosal extract were studied to determine whether they resembled the intrinsic factor of other species. Total $B_{12}$ binding capacity of histamine- and urecholine-stimulated dog fundic gastric juice was much higher than that reported for man. Extracts of fundic gastric mucosa showed $B_{12}$ binding capacity far higher than that of dog antrum or intestine, indicating that the fundus is the main site of the $B_{12}$ binders secretion in the dog. Paper electrophoresis of dog fundic gastric juice revealed a single $B_{12}$ binder whose mobility and isoelectric point differed from that of human intrinsic factor, and which was highly susceptible to peptic digestion. When the $B_{12}$ binding materials of fundic gastric juice were separated by sequential chromatography on Sephadex G-25, Amberlite IRC-50, and Sephadex G-100 columns, two $B_{12}$ binders were obtained, whose electrophoretic mobilities differed from those of human intrinsic factor. These 2 binders were also inactive on guinea pig and dog intestinal mucosa homogenate assay for intrinsic factor. The secretion of $B_{12}$ binders in dog gastric juice, after histamine and urecholine stimulation, also showed a different pattern from that of intrinsic factor in man. None of the $B_{12}$ binders from dog gastric juice or mucosal extracts cross-reacted with the antibody to human intrinsic factor contained in pernicious anemia serum.

### 5162 EFFECT OF DIETARY FAT CONTENT ON THE SITE OF FAT ABSORPTION IN HAMSTER SMALL INTESTINE *IN VITRO.*

*(E.)* Hoving, J. (Lab. Physiol. Chem., U. Groningen, Netherlands) and A. J. Valkema. *Biochim Biophys Acta* 187(1):53-58, 1969.

Everted sacs of small intestines from male golden hamsters (10) on a diet containing 2 or 20% fat were used to study the efficiency of the distal intestine in absorbing fat after a high dietary load of fat had been given for some weeks. Incorporation of [1-$^{14}$C] oleic acid into neutral fat was determined. In the first 60% of the small intestine no appreciable differences were found, but a considerable increase was noted in the remaining part of the small intestine from hamsters fed the high fat content diet. When a large dietary load of fat had been given for at least 3 weeks, a large portion of the ileum was almost as efficient as the jejunum in fat absorption. No special area of the small intestine is specifically adapted for fat absorption. This mechanism provides a further explanation for the high capacity of the gut to absorb fat and emphasizes the essential function of the ileum when large amounts of fat must be absorbed.

### 5163 THE INFLUENCE OF MOLECULAR STRUCTURE OF NEUTRAL AMINO ACIDS ON THEIR ABSORPTION KINETICS IN THE JEJUNUM AND ILEUM OF HUMAN INTESTINE *IN VIVO.*

*(E.)* Adibi, S. A. (U. Pittsburgh Sch. Med., Pa.). *Gastroenterology* 56(5):903-913, 1969.

The absorption kinetics of threonine, leucine and valine in the upper jejunum and of threonine and leucine in the upper ileum were studied by an *in situ* perfusion technique in normal human subjects. The intestinal absorption rates of leucine and valine followed the kinetics of a saturable transport system in the upper jejunum. Leucine had a greater affinity for the membrane carrier system than valine. This was manifested by a lower $K_m$ and $V_{max}$ for the leucine absorption rates. Threonine, which of the 3 amino acids studied showed the least affinity for the transport sites, was absorbed at a rate linearly proportional to its concentration in the perfusion solutions (5 to 150 mM). Although the threonine absorption rate was lower than the absorption rates of the other 2 branched chain amino acids at the lower perfusion concentrations of amino acids (20 mM), the order of absorption rates was reversed at the higher concentration of substrates (100 mM). There was a marked reduction in the absorption rates of leucine and threonine from the upper ileum as compared to the upper jejunum. However, the order of affinities of amino acids for the membrane carrier system in the upper ileum was similar to their order of affinities in the upper jejunum, leucine having a greater affinity than threonine. In the ileal segment, threonine absorption rates followed the kinetics of a saturable transport system, whereas they did not in the jejunum. The rise in plasma concentrations of leucine during continuous perfusions of the proximal and distal segments of the same subjects was also determined. This investigation not only further substantiated the evidence for a reduction in the absorption rate of leucine in the ileum but also permitted a comparison in transport capacity of the proximal and distal segments. A distance of 80 cm in the upper small intestine, as compared with the entire lower intestine, accounted for 80 to 84% of leucine transport from the leucine solutions perfused in the small intestine of 2 human subjects.

### 5164 SODIUM AND POTASSIUM ELIMINATION IN THE SWEAT IN ADULT SUBJECTS WITH DIGESTIVE ULCERS.

*(It.)* Proto, R. (Inst. Clin. Gen. Med., U. Bari, Italy). *Arch Ital Mal Appar Dig* 35(1):17-27, 1968.

## ABSORPTION-EXCRETION

In 60 patients with gastrointestinal ulcers (52 males and 8 females, 17-74 yr old), and in 35 normal subjects, sodium and potassium levels in the sweat were determined after i.m. administration of 15 mg/day of deoxycorticosterone acetate for 2 days before the examination. Among the normal subjects only 1 case showed an increase of sodium higher than 80 mEq/liter. In patients with ulcers, only 2 cases of duodenal ulcer presented a hyperconcentration of sodium in the sweat (92 and 85 mEq/liter). The average values of sodium level were: in normal subjects 31.64 mEq/liter; in the gastric ulcers 38.81 mEq/liter; in the duodenal ulcers 55.07 mEq/liter. No pathologic values of potassium in the sweat were found in any group. The average values were: in normal subjects 8.22 mEq/liter; in gastric ulcers 7.51 mEq/liter; in duodenal ulcers 7.93 mEq/liter. The results are discussed on the basis of reviewed literature.

**5165 APPLICATION OF WHOLE-BODY GAMMA SPECTROMETRY TO VITAMIN-B$_{12}$ ABSORPTION.** *(E.)* Meyer, B. J. (Dept. Physiol., U. Pretoria, S. Africa), C. R. Jansen, C. J. Van Der Merwe and S. F. Oosthuizen. *S Afr Med J* 42(3):50-52, 1968.

Thr provisional diagnosis of megaloblastic anemia or folic acid deficiency in 18 patients was followed by a study of vitamin B$_{12}$ absorption using whole-body gamma spectrometry. The whole-body background radioactivity of each patient was counted for 20 min. The patient was then starved for at least 8 hr before 1.0 $\mu$g vitamin B$_{12}$ labeled with about 1 $\mu$C $^{57}$Co was given p.o. A whole-body count was carried out after 30 min, and every 2 hr until the count reached a maximum or until 6 hr had passed. Daily whole-body counts were made for 6 days thereafter, the last count being made 7 days after the vitamin B$_{12}$ intake. If absorption was at a relatively low level, a second dose of the labeled vitamin B$_{12}$ plus intrinsic factor was given p.o. and the different counts repeated. On the first day the counts tended to decrease over the first few hours. This was usually followed by a fairly sustained increase which sometimes exceeded initial values. (This change in count rate is an inherent weakness of whole-body counters: sensitivity of the counter is a function of the distribution of the radioisotope in the body.) Some patients with a provisional diagnosis of pernicious anemia showed good vitamin B$_{12}$ absorption. In 2 of these instances intrinsic factor had little effect on absorption. Of the 9 patients with a preliminary diagnosis of pernicious anemia, 6 showed low vitamin B$_{12}$ absorption. The simultaneous administration of intrinsic factor greatly increased absorption in these. The other 3 patients showed high absorption: 1 proved to have carcinoma of the stomach. Serum studies in a second patient supported the accuracy of absorption test strongly. In 5 of the 7 patients with a provisional diagnosis of megaloblastic anemia due to folic acid deficiency, the absorption of labeled vitamin B$_{12}$ was high and they responded well to folic acid therapy. One of the other 2 refused further tests and the other was treated with folic acid, pyridoxine and vitamin C. After 4 weeks vitamin B$_{12}$ absorption had increased from 12.4% with intrinsic factor to 23.6%.

**5166 STUDIES ON THE INTESTINAL ABSORPTION OF RADIOACTIVE β-CAROTENE AND VITAMIN A IN MAN. CONVERSION OF β-CAROTENE INTO VITAMIN A.** *(E.)* Blomstrand, R. (Karolinska Inst., Stockholm, Sweden) and B. Werner. *Scand J Clin Lab Invest* 19(4):339-345, 1967.

$15^{1-14}$C-β-carotene-15, $15^{1-3}$H-β-carotene-15, $^{14}$C-vitamin A alcohol-15, and $^{3}$H-vitamin A-15 were fed to 8 patients (4 male, 4 female; aged 39 to 72 yr) in whom polyethylene cannulae had been inserted in the thoracic duct in the neck. The lymph lipids were extracted and chromatographed on columns and on thin-layer plates of alumina. Only 8.7-16.8% of the fed labelled β-carotene was normally absorbed via the lymphatic pathway and recovered mainly as retinyl esters. Unchanged labelled β-carotene was only 1.7 to 27.9% of the radioactivity after ingestion of labelled β-carotene. The recovery of radioactivity in the lymph lipids after feeding labelled vitamin A alcohol or acetate was in the range of 6.7 to 66.9%. Absorption of radioactivity into the lymph followed the appearance of the chylomicron triglycerides. Labelled retinyl esters, mainly retinyl palmitate, represented 75 to 90% of the absorbed radioactivity after feeding labeled vitamin A, and 60 to 75% after feeding labelled β-carotene. The reaction mechanism of vitamin A biosynthesis in the human intestinal mucosa consists of central cleavage of β-carotene into 2 molecules of vitamin A alcohol. In 1 patient fed $15^{1-14}$C-β-carotene-15, 46.9% of the fed radioactivity was recovered as β-carotene, suggesting the presence of an enzymatic block in the conversion mechanism.

**5167 IRON ABSORPTION IN LIVER CIRRHOSIS.** *(Ger.)* Lindner, H. (Hamburg, Germany)., 476-pp. 478 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

**5168 IRON IN BRUNNER'S GLANDS IN HEMOSIDEROSIS.** *(E.)* Astaldi, G. (Tortona Hosp., Tortona, Italy), G. Meardi, P. L. Taverna and R. Airo. *Lancet* 1(7546):816, 1968.

**5169 GASTRIC FACTOR IN IRON ABSORPTION.** *(E.)* Jacobs, A. (Cardiff Royal Infirm., Wales). *Lancet* 1(7555):1313-1314, 1968.

**5170 INTESTINAL ABSORPTION AND LYMPHATIC TRANSPORT OF CHOLESTEROL IN THE RAT: INFLUENCE OF THE FATTY ACID CHAIN LENGTH OF THE CARRIER TRIGLYCERIDE.** *(E.)* Sylvén, C. (Chem. Ctr. U. Lund, Sweden) and B. Borgström. *J Lipid Res* 10(4): 351-355, 1969.

**5171 ABSORPTION AND LYMPHATIC TRANSPORT OF CHOLESTEROL AND SITOSTEROL IN THE RAT.** *(E.)* Sylven, C. (Chem. Ctr., U. Lund, Sweden) and B. Borgstrom. *J Lipid Res* 10(2):179-182, 1969.

**5172 TOXICITY AND INTESTINAL ABSORPTION OF BILIRUBIN.** *(Ger.)* Beck, K. (Freiburg, Germany), E. Fiedler and H. Lammers. pp. 101-106 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

**5173 FECES LIPID AND STEROID EXCRETION IN JAUNDICE.** *(Ger.)* Erb, W. (Frankfurt, Germany). pp. 441-444 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

## ABSORPTION-EXCRETION

5174 **RETENTION OF IRON FRACTION DEPOSITS IN JAUNDICE.** *(Ger.)* Woehler, F. (Freiburg, Germany). pp. 469-476 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5175 **TRANSPORT OF AMINO ACIDS VIA THE MESENTERIC LYMPH DUCT IN RATS.** *(E.)* Jacobs, F. A. (Sch. Med., U. North Dakota, Grand Forks) and E. E. Largis. *Proc Soc Exp Biol Med* 130(3):692-696, 1969.

5176 **EFFECT OF ACUTE UREMIA ON AMINO ACID UPTAKE AND UREA PRODUCTION BY PERFUSED RAT LIVER.** *(E.)* Lacy, W. W. (Vanderbilt U. Sch. Med., Nashville, Tenn.). *Amer J Physiol* 216(6):1300-1305, 1969.

5177 **EFFECT OF COMBINATION OF PHARMACEUTICALS ON GASTROINTESTINAL ABSORPTION. II. COMBINATION OF CAFFEINE WITH NON-ABSORBABLE DRUGS.** *(E.)* Goto, S. (Fac. Pharm. Sci., Kyushu U., Katakasu, Fukuoka, Japan), O. Tsuzuki and S. Iguchi. *Chem Pharm Bull* 17(4):837-840, 1969.

5178 **STUDIES ON ABSORPTION OF DRUGS. IV. EFFECTS OF SURFACE ACTIVE AGENTS ON INTESTINAL ABSORPTION OF DRUGS.** *(E.)* Aoki, M. (Fac. Pharm. Sci., Osaka U., Japan), A. Kamada, N. Yata, K. Kishimoto, C. Mugino, H. Sakaguchi, K. Tanabe and I. Mimura. *Chem Pharm Bull* 17(6):1109-1114, 1969.

5179 **INTESTINAL ABSORPTION OF VITAMIN $D_3$-$H^3$ IN 16 CASES OF OSTEOMALACIA.** *(Fr.)* Miravet, L. (Med. Soc. Hosp., Paris, France), A. Dryll, J. C. Rambaud, J. C. Bogniel and D. Hioco. *Sem Hop (Paris)* 43(42):2596-2603, 1967.

5180 **INFLUENCE OF BLOOD PRESSURE DECREASING SUBSTANCES ON INTESTINAL ABSORPTION.** *(Ger.)* Halsbeck, M. (Munich-Schwabing Hosp., Germany), F. Hierstetter, H. Foerster and H. Mehnert. *Verh Deutsch Ges Inn Med* 73(4):298-302, 1967.

5181 **EXCRETION OF VANILLYLMANDELIC ACID AND VANILLIC ACID IN HEALTHY, CARDIOVASCULAR DISEASE AND LIVER PATIENTS.** *(Ger.)* Brisse, B. (Physiol. Chem. Inst., U. Bonn, Germany) and F. Bender. *Verh Deutsch Ges Inn Med* 73(4):1114-1116, 1967.

5182 **ROENTGENOCINEMATOGRAPHIC STUDY OF GASTRIC MOTILITY IN THE TRENDELENBURG POSITION.** *(It.)* Racugno, V. (Inst. Radiol., U. Cagliari, Italy) and A. Sannia. *Nunt Radiol* 33(Suppl.):331-336, 1967.

5183 **INTESTINAL ABSORPTION OF INSULIN.** *(Jap.)* Matsubara, Y. (Tokyo Med. Coll., Japan), T. Sasmoto, T. Kogure and Y. Wakuta. *J Tokyo Med Coll* 24(5):517-521, 1967.

5184 **INFLUENCE OF FAT ABSORPTION ON THE ACIDITY OF GASTRIC JUICES. ANALYSES WITH RADIOACTIVE LABELED FAT AND INTRAGASTRIC pH DETERMINATION.** *(Ger.)* Hemmati, A. (Med. U. Polyclin., Bonn, Germany) and H. Sawade. *Verh Deutsch Ges Inn Med* 73(4):278-281, 1967.

5185 **INFLUENCE OF DIETARY CALCIUM INTAKE ON $CA^{47}$ ABSORPTION IN MAN.** *(E.)* Spencer, H. (VA Hosp., Hines, Ill.), I. Lewin, J. Fowler and J. Samachson. *Amer J Med* 46(2):197-205, 1969.

See also: 5443,5603,5605,5634,5665,5721,5729

## MOTILITY

**5186** **THE SHORT-TERM EFFECT OF VAGOTOMY OF GASTRIC MOTILITY.** *(E.)* Sugawara, K. (Coll. Med. U. Florida, Gainesville), A. Isaza, E. R. Woodward and L. R. Dragstedt. *Arch Surg (Chicago)* 99(1):1-5, 1969.

The immediate quantitative changes produced on the motility of the proximal and pyloric gastric antrum after transthoracic vagotomy have been studied in 10 mongrel dogs (13 to 18 kg) with electromyography and electromanometry. Under the experimental conditions vagotomy decreased the frequency of peristalsis (interval of spike discharge increased 13.4%) and reduced the tonus (23.4 mm $H_2O$ and 35.3 mm $H_2O$ resp.) and contraction pressure (30-60%) of the proximal and distal pyloric antrum. The velocity of propagation of the peristaltic wave was not changed.

**5187** **ELECTROSTIMULATION OF THE SMALL AND THE LARGE BOWEL IN DOGS.** *(E.)* Járos, G. G. (Dept. Surg. U. Pretoria, South Africa), C. R. Jansen and J. S. Loubser. *S Afr Med J* 43(19):565-567, 1969.

The behavior of the small and large bowel subjected to pulsed electrical stimulation was studied in 10 dogs. A wide range of pulse durations and frequencies of the stimulating impulses was used. The minimum effective stimulus strength and the extent of constriction were measured for the various pulse durations and frequency values. The minimum effective stimulus strength was the lowest at about 20 cycles/sec and the extent of constriction increased with frequency and reached 80% of its maximal constriction at about 50 cycles/sec and did not increase appreciably when the frequency was elevated above 50 cycles/sec. These results suggest that 20 cycles/sec should be used when the physical size of the stimulator is of greater importance and 50 cycles/sec should be used where the extent of bowel constriction is more important.

**5188** **INTRAGASTRIC PRESSURE AFTER VAGOTOMY IN MAN.** *(E.)* Aune, S. (Ullevål Hosp., Oslo, Norway). *Scand J Gastroent* 4(5):447-452, 1969.

Thirty-one recordings were made of gastric pressure, in the empty state and following saline instillation in 27 patients (a control group of 12 including 2 normal subjects, 3 with pyloric stenosis, 7 with Billroth I partial gastrectomy, and a vagotomy group of 15 including 5 with vagotomy + pyloroplasty and 10 with vagotomy + Billroth I): Increased pressures were noted after vagotomy, together with absence of pressure variations, sometimes lasting for over two yr. There was no clear difference between normals and those subjected to Billroth I procedures. The impaired motility following vagotomy may be caused by rigidity or dystony of the gastric smooth musculature rather than by atony.

**5189** **INTESTINAL MUCOSAL HORMONES AND MOTOR FUNCTION OF THE STOMACH OF MAN.** *(E.)* Dinoso, V. (Temple U. Sch. Med., Philadelphia, Pa.), W. Y. Chey, J. Hendricks and S. H. Lorber. *J Appl Physiol* 26(3):326-329, 1969.

The effect of secretin and cholecystokinin-pancreozymin on the motor function of the stomach was studied by measuring the intragastric pressure changes in 26 subjects (20 men and 6 women, 23-73 yr old). Jorpes and Mutt or Boots secretin (1 U/kg i.v.) markedly inhibited the spontaneous motor activity of the stomach as well as β-methylcholine carbamate. Urecholine chloride stimulated the motor activity of the stomach. The duration of motor inhibition was 20 min. There was no difference observed in the inhibitory actions of the 2 preparations of secretin. Similar inhibition of gastric motor activity was observed when Cecekin (Cholecystokinin-pancreozymin) in a dose of 1 Ivy U/kg was administered i.v., but Boots pancreozymin) in a dose of 1 Crick, Harper, and Raper U did not influence motor activity significantly. The reason for this difference in the effect of the 2 cholecystokinin-pancreozymin preparations was an inadequate level of activity in the Crick, Harper and Raper sample.

**5190** **EFFECT OF SECRETIN AND CHOLECYSTOKININ ON CANINE GASTRIC ELECTRICAL ACTIVITY.** *(E.)* Kelly, K. A. (Mayo Clin., Rochester, Minn.), E. R. Woodward and C. F. Code. *Proc Soc Exp Biol Med* 130(4):1060-1063, 1969.

Four female dogs were used to determine the effect of secretin and cholecystokinin on gastric myoelectrical activity during a steady state of gastric contractions. Gastric antral action potentials excited by a constant infusion of water into the lumen of the stomach were markedly inhibited by secretin (0.1 U/kg/min for 15 min) but were not inhibited by similar infusions of cholecystokinin. Secretin may slow gastric emptying by decreasing gastric contractions whereas cholecystokinin does not. The reduced gastric emptying associated with duodenal acidification may be the consequence of release of secretin.

**5191** **THE EFFECT OF CHOLECYSTOKININ ON DUODENAL MOTILITY.** *(E.)* Dahlgren, S. (Karolinska Inst., Stockholm, Sweden). *Acta Chir Scand* 133(5):403-405, 1967.

New preparations of cholecystokinin with varying cholecystokinetic activities were studied in 6 mongrel dogs of both sexes (13-30 kg) as to their effects on duodenal motility. Peristalsis was studied with endoradiosondes placed in the duodenum. The three different preparations studied all had a strong stimulating effect on duodenal motility. Intestinal motility was induced even when the common bile duct was ligated. The stimulating effect depends upon cholecystokinin and not upon some impurity in the preparation.

**5192** **RESECTION OF THE SMALL INTESTINE IN RATS. IV. ADAPTATION OF GASTROINTESTINAL MOTILITY.** *(E.)* Nygaard, K. (Rikshospitalet, Oslo, Norway). *Acta Chir Scand* 133(5):407-416, 1967.

Resection of the proximal 50% and 75%, and of the distal 50% and 75% of the small intestine was performed in adult rats, of both sexes (148-330 g) and passage through the intestinal tract studied at different time intervals after the operation using radioactive chromate as a marker. In normal rats the passage was more rapid through the upper small intestine than through the lower. Intestinal transit was more rapid after distal resections than after proximal resections. After both types of operation an adaptation of motility occurred. After proximal resections intestinal passage was slowed during the first postoperative period. When 50% was resected, the pattern of intestinal transit was similar to that found in normal rats, even as early as 7 days postoperatively. After 75% resection the stomach-to-cecum transit time was distinctly shorter than normal 7 days postoperatively. During the second week the passage slowed down and later, the transit pattern was almost normal. After proximal resections a delay also occurred in the emptying of the stomach. Following distal resections intestinal passage slowed with time, but the transit time was shorter than normal even after several months. Gastric emptying remained unchanged. After 75% distal resection the passage through the large intestine was abnormally rapid during the first postoperative period but this slowed with time.

### 5193 INTESTINAL MOTILITY IN LOW SMALL BOWEL OBSTRUCTION. ANIMAL EXPERIMENTS WITH ENDORADIOSONDES. *(E.)* Dahlgren, S. (Karolinska Sjukhuset, Stockholm, Sweden) and L. Thoren. *Acta Chir Scand* 133(5):417-421, 1967.

Motility studies by means of endoradiosondes in dogs and rabbits with experimental low small bowel obstruction showed the intestine not to become paralytic in the terminal phase of the disorder, (1 to 4 days for dogs, 48 to 65 hr for rabbits) but still to show marked activity. Stimulation with synstigmine heightened the activity which persisted for at least two hr. Cholecystokinin provoked vigorous peristalsis which lasted for up to 30 min. In low intestinal obstruction only slight dilatation of the bowel occurred, particularly if the intestine was stimulated to contract by daily injections of cholecystokinin and synstigmine.

### 5194 PERIODIC VARIATIONS OF THE ABDOMINAL SKIN POTENTIALS IN RELATION WITH THE DIGESTIVE ACTIVITY. *(Fr.)* Martin, A. (Ctr. Hosp., Tours, France), J. Thouvenot and P. Touron. *C R Soc Biol* 161(12): 2595-2600, 1968.

In 56 subjects (mainly females, 17-70 yr old) with no digestive diseases, the intestinal motility was studied by electrodes placed on the skin on various areas of the left fossa iliaca. Two types of activities were observed: basal activity with slow oscillations of 50 $\mu$V, and isolated or grouped responses of large amplitude. After a meal the average amplitude of the basal activity increased significantly (from 50 to 100 $\mu$V). Isolated or grouped responses of large amplitude (100-300 $\mu$V), mainly triphasic, were characteristic. The distribution of the different forms of activities was significantly influenced by the digestive activity: slow oscillations before the meal, rhythmical responses after the meal and many hr later. Diagrams of the response distribution in relation to the localization of the electrodes in 15 subjects showed that: generally the responses distribute themselves from one derivation to another, alternating from 1-3 hr; after the meal there was a change in the distribution and appearance of the waves; during sleep there was silence within 1 hr. The dynamogenic pharmacological agent (prostigmin) and depressant (atropine) cause important changes in the electrical activity: changes in appearance of grouped responses by the former, and flattening of the oscillations by the latter; basal activity continued, although at a decreased amplitude.

### 5195 EFFECTS OF SOME AUTONOMIC DRUGS ON CIRCULAR ESOPHAGEAL SMOOTH MUSCLE. *(E.)* Christensen, J. (Dept. Intern. Med., U. Iowa, Iowa City) and E. E. Daniel. *J Pharmacol Exp Ther* 159(2): 243-249, 1968.

Adult male and female cats were anesthetized, the esophagus, including the esophagogastric junction, removed and placed in warmed Krebs-Ringer solution bubbled with gas containing 95% $O_2$ and 5% $CO_2$. The esophagus was opened longitudinally and a transverse strip cut from just above the gastroesophageal mucosal junction. The strips were mounted, mucosa up, in oxygenated Krebs-Ringer solution kept at 35-38C and attached to a force-displacement transducer for isometric recording of tension. There were no spontaneous contractions and slow waves and spikes were absent in resting tissue but occurred during drug-induced activity. Cholinergic drugs produced contractions. Maximal responses to acetylcholine were less than those to methacholine and carbachol. Norepinephrine produced contractions opposed by tolazine but not by propanol. Contractile responses to the cholinergic drugs and to norepinephrine were opposed by atropine but were unaltered by nicotine or hexamethonium. Responses to the 4 stimulating drugs declined slowly with time and tachyphylaxis was not present. Isoproterenol did not stimulate but depressed the contractile responses to cholinergic drugs. Adrenergic alpha receptors in esophageal smooth muscle tissue are excitatory and beta receptors are inhibitory. Cholinergic drugs are excitatory. Relaxation of the lower esophageal sphincter, if mediated through adrenergic nerves, is a response to the stimulation of adrenergic beta receptors.

### 5196 REGIONAL VARIATIONS IN RESPONSE OF CAT ESOPHAGEAL MUSCLE TO STIMULATION WITH DRUGS. *(E.)* Christensen, J. (Dept. Intern. Med., U. Iowa, Iowa City) and R. F. Dons. *J Pharmacol Exp Ther* 161(1):55-58, 1968.

The response to acetylcholine, carbachol, methacholine and norepinephrine (concentrations from $10^{-8}$ to $10^{-5}$ g/ml) by isometric contractions of cat muscle strips *in vitro* was measured to determine dose-response curves to the 4 agents. Twenty adult male and female cats were anesthetized with ether, the chest opened and the esophagus marked *in situ* at a point precisely 12 cm above the phrenoesophageal ligament. As in most mammals, the cat's phrenoesophageal ligament surrounds the esophagus where it traverses the diaphragm and attaches it to the diaphragm. The gastroesophageal junction lies less than ½ cm below this ligament. Sphincteric action is a function of the circular muscle of the lowest 2 cm of the esophagus, and the total esophageal length in these cats was 16-18 cm. The entire esophagus, with a rim of the adjacent stomach, was opened longitudinally, stretched to its *in situ* length and pinned in place with the mucosa down. Transverse strips (about 1 by 1/3 cm), cut from various levels of the esophageal wall, were attached to a force-displacement transducer for isometric recording of tension changes. All drugs induced contractions of strips at all levels, but there were quantitative differences in the responses of strips from different levels. Threshold concentrations were not determined with precision since drug concentrations were increased by full log units. There were no obvious differences in thresholds among the different levels of the esophagus. Responses to levels above threshold varied with the level of the esophagus from which the strip was taken. Strips from the distal 2 cm appeared to be somewhat less responsive than those from 2-4 cm or 4-6 cm above the phrenoesophageal ligament. Strips from the proximal esophagus were much less responsive than those from more distal sites. The most proximal strips (10-12 cm above the phrenoesophageal ligament) exerted less tension than more distal strips at equal concentrations of all 4 drugs. A qualitative difference between sphincteric and nonsphincteric muscle was not demonstrated. The diminished responsiveness of the most proximal level shows that striated muscle (predominant over smooth muscle at this level) is not stimulated under these conditions.

5197 **$^{144}$Ce-$^{144}$Pr AS A PARTICULATE DIGESTA FLOW MARKER IN RUMINANTS.** *(E.)* Ellis, W. C. (Anim. Sci. Dept., Texas A & M U., College Station) and J. E. Huston. *J Nutr* 95(1):67-78, 1968.

A number of indigestible markers have been used to measure the flow of particulate matter through the gastrointestinal tract of ruminants. The validity of radioactive cerium as such a marker has been tested *in vivo* by comparing its flow under selected conditions with that for residues derived from different size stained markers upon which radioactive cerium had been adsorbed and with that for water-soluble and water-insoluble markers. Four experiments were conducted with yearling, wether sheep. Each experiment included a 2-week preliminary period during which the animals received a constant, twice daily intake of the forage, a 6-day collection stall adjustment period and a fecal collection period following the administration of the markers at the time of, or mixed with, a single evening meal. Initial fecal collections were made after 12 hr and collections were made at 3 hr intervals for the next 37 hr and at increasingly extended intervals (6, 8, 12, and 24 hr) for the remainder of the 8-10 day collection periods. Fresh feces were weighed and a 10% aliquot removed and analyzed for polyethylene glycol. The remainder of each fecal collection was dried for measurement of radioactive cerium, chromic oxide, and stained particles. Mean retention time for stained particles was calculated using the method of Castle (*Brit J Nutr* 10:15, 1956). In general polyethylene glycol (PEG) and chromic oxide were excreted at a similar rate until 50-60% had been excreted, after which PEG was excreted at a faster rate. $^{144}$Ce was excreted initially at slower rate until about 10% had been excreted, at a similar but delayed rate until 50-60% excretion, and thereafter at a rate slower than PEG and a rate similar to or faster than chromic oxide. The overall mean retention time for PEG was significantly less (26.5 hr) than that for chromic oxide (30.0 hr) which was, in turn significantly less than that for $^{144}$Ce (32.7 hr). Recoveries of $^{144}$Ce in the feces excreted through 129 hr were 96.8, 109.7 and 102.5% for 3 sheep. The mean retention time for $^{144}$Ce was not markedly different when adsorbed onto hay particles or readily fermentable starch.

5198 **X-RAY STUDY OF GASTROINTESTINAL MOTILITY AFTER ADMINISTRATION OF MEDIUM-CHAIN TRIGLYCERIDES AND OLIVE OIL.** *(Cz.)* Skala, I. (Res. Inst. Human. Nutrit., Prague, Czechoslovakia) and F. Pirk. *Cesk Gastroent Vyz* 22(3):174-179, 1968.

A mixture of olive oil or medium-chain triglycerides (MCT), dried fat-free milk, beet sugar, barium sulfate, and water was given in a dose of 1 ml to Wistar rats and in doses of 125 or 250 ml to normal humans with no gastrointestinal disease. X-rays were taken every 30 min until the stomach was completely empty. The MCT mixture was emptied from the stomach later than the olive oil mixture in both rats and humans. This difference was statistically significant in both cases. In rats the time required for the MCT mixture to reach the cecum was significantly longer than for the olive oil mixture. This difference was not significant in humans. Thus, better absorption of MCT by patients with malabsorption does not appear to be due to its more rapid hydrolysis and more rapid stomach emptying. The relation between MCT and enterogastrone, changes in the osmotic pressure in the duodenum and proximal jejunum, and the low molecular weight of MCT may account for its better absorption.

5199 **GASTRIC PERISTALSIS AS STIMULUS OF ACID SECRETION IN MAN.** *(E.)* Linares, C. A. (Dept. Surg., U. Florida, Gainesville), A. Lemberg and L. R. Dragstedt. *Arch Surg (Chicago)* 99(4):459-461, 1969.

5200 **SIGNIFICANT FUNCTIONS OF THE HEPATIC AND CELIAC VAGI.** *(Rev.)(E.)* Griffith, C. A. (U. Washington Sch. Med., Seattle). *Amer J Surg* 118(2): 251-259, 1969.

5201 **CONTRIBUTION TO THE METHOD OF RECORDING BIOELECTRIC POTENTIALS OF THE HUMAN STOMACH.** *(Rev.)(E.)* Šmoldas, J. (Med. Fac., Palacký U., Olomouc, Czechoslovakia) and J. Kunzfeld. *Rev Czech Med* 15(2):103-110, 1969.

5202 **ON THE RHYTHM OF THE ELECTRICAL AND MOTOR ACTIVITIES IN INTACT STOMACHS AND AFTER TRANSVERSE RESECTIONS.** *(E.)* Milenov, K. *Izv Inst Fiziol (Sofiia)* 11:63-77, 1968.

5203 **SPASMOLYTIC EFFECT OF METHYL-4-UMBELLIFERONE ON THE SPHINCTER OF ODDI: STUDIES ON THE MECHANISM OF ACTION OF THE DRUG.** *(Fr.)* Fontaine, L. (Lipha-Oberval Res. Ctr., Lyon, France), M. Grand, D. Molho and E. Boschetti. *Therapie* 23(1):63-74, 1968.

5204 **EXPERIMENTAL STUDIES OF ANTIPERISTALTIC JEJUNUM TRANSPLANTATION.** *(Dan.)* Amdrup, E. (U. Inst. Exp. Surg. Res., Copenhagen, Denmark), S. W. Jorgensen and B. M. Sorensen. *Nord Med* 78(46):1507-1513, 1967.

5205 **MOTOR-EVACUATORY FUNCTION OF THE GASTROINTESTINAL TRACT AFTER SURGERY ON THE SMALL AND LARGE INTESTINES (CLINICAL-EXPERIMENTAL STUDY).** *(Rus.)* Velichenko, V. M. (Vitebsk Med. Inst., USSR), I. N. Siparov and N. I. Lobotskii. *Klin Khir (Kiev)* (8):25-30, 1967.

## MOTILITY

5206 **THE INNERVATION OF THE VISCERAL SMOOTH MUSCLE AND THE QUESTION OF NERVE TERMINATIONS IN THE *OCTOPUS VULGARIS*.** *(E.)* Botar, J. (Dept. Human Anat., Genoa U., Italy). *Acta Anat* 67(4):561-570, 1967.

5207 **DIFFERENTIAL EFFECTS OF EXTRACTS FROM CIRCULAR AND LONGITUDINAL MUSCLE FIBERS OF THE DOG'S SMALL INTESTINE ON THE CONTRACTIONS OF THE FROG HEART.** *(Rum.)* Dorogan, D. (Lab. Physiol., I.M.F., Iasi, Romania), A. Crîngu, I. Scoban, I. Stefan and V. Rosca. *Fiziol Norm Pat* 13(6):515-520, 1967.

See also: 5182,5430,5741

## SECRETION AND METABOLISM

**5208 THE ROLE OF VITAMIN K IN THE BIOSYNTHESIS OF SOME EXO-ENZYMES FOUND IN THE DIGESTIVE TRACT.** *(Rus.)* Bogdanov, N. G. (Altai Med. Inst., Barnaul, USSR) and V. A. Lider. *Biull Eksp Biol Med* 65(3):60-62, 1968.

Vitamin K deficiency was produced in white rats by feeding them a diet deficient in vitamin K (primary deficiency) or by ligating and transecting their bile ducts (secondary deficiency). In animals with secondary vitamin K deficiency significant decreases occurred in the activities of enterokinase and alkaline phosphatase in the duodenal mucosa. When these rats were given menadione sodium bisulfite (2.5-5 mg/kg body weight/day s.c.), the activities of these enzymes and pancreatic lipase increased, but not to their original values. Decreases in the activities of pancreatic lipase and amylase and enterokinase and alkaline phosphatase occurred in animals fed a vitamin K-deficient diet. These experiments show that vitamin K plays a role in the biosynthesis of the digestive enzymes studied. The most logical explanation for this phenomenon seems to be that vitamin K takes part in oxidative phosphorylation and ensures that the body has an adequate reserve of high-energy compounds required for the biosynthesis of these enzymes.

**5209 REPEATED ALCOHOLIC INTOXICATION COMPARED WITH CONTINUED CONSUMPTION OF DILUTE ETHANOL IN EXPERIMENTS WITH RATS ON A MARGINAL DIET.** *(E.)* Wallgren, H. (Res. Lab. State Alcohol Monopoly, Helsinki, Finland), J. Ahlqvist, K. Ahman and H. Suomalainen. *Brit J Nutr* 21(3):643-660, 1967.

**5210 VITAMIN A ESTERASE ACTIVITY IN VARIOUS ORGANS OF THE CHICK.** *(E.)* Nir, I. (Fac. Agric., Hebrew U., Rehovot, Israel), I. Bruckental and I. Ascarelli. *Brit J Nutr* 21(3):557-563, 1967.

**5211 EFFECT OF DIETARY PROTEIN LEVEL ON *IN VIVO* AND *IN VITRO* VITAMIN A ESTERASE ACTIVITY IN THE CHICK.** *(E.)* Nir, I. (Fac. Agr., Hebrew U. Rehovot, Israel), I. Bruckental, I. Ascarelli and A. Bondi. *Brit J Nutr* 21(3):565-581, 1967.

**5212 SHUNT BILIRUBIN.** *(E.)* Yamamoto, T. (Fac. Med., Kyoto U., Japan). 41-47 pp in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

**5213 FURTHER BIOCHEMICAL AND CLINICAL EVIDENCE FOR THE COMPLEX CONCEPT OF PIGMENT I.** *(E.)* Schalm, L. (Munic. Hosp., Arnheim, Netherlands). 8-9 pp. in Ikterus. International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

**5214 THE PROBLEM OF BILIRUBIN MONOGLUCURONIDE.** *(E.)* Nosslin, B. (Gen. Hosp., Malmo, Sweden). pp. 5-7 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

**5215 ON THE EXISTENCE OF BILIRUBIN MONOGLUCURONIDE.** *(E.)* Heirwegh, K. P. M. (St. Rafael U. Clin., Louvain, Belgium). 10 pp. in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

**5216 EVIDENCE FOR THE MULTIPLICITY OF GLUCURONYL TRANSFERASES.** *(E.)* Isselbacher, K. J. (Massachusetts Gen. Hosp., Boston). 11-15 pp. in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

**5217 ON SPECIFICITY OF GLUCURONYL TRANSFERASE.** *(E.)* Arias, J. M. (Albert Einstein Coll. Med., Bronx, N.Y.). 15-16 pp. in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

**5218 GLUCURONYL TRANSFERASE ACTIVITIES IN VARIOUS DISEASES.** *(E.)* Yamamoto, T. (Fac. Med., Kyoto U., Japan). 17-18 pp. in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

**5219 BILIRUBIN AS A TRIGGER FOR ITS OWN GLUCURONYL TRANSFERASE.** *(E.)* Bakken, A. F. (Munic. Hosp., Oslo, Norway) and J. Fog. 27-28 pp. in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

**5220 GLUCURONIDE SYNTHESIS DUE TO ENZYME INDUCTION.** *(Ger.)* Remmer, H. (Tübingen, Germany) and A. Hildebrandt. 19-27 pp. in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

**5221 ORAL AND INTRADUODENAL GLUCOSE AND FRUCTOSE SATURATION WITH DIFFERENT DOSES.** *(Ger.)* Foster, H. (Inst. Physiol., Frankfurt, Germany) and H. Mehnert. *Verh Deutsch Ges Inn Med* 73(4):778-781, 1967.

**5222 DIURESEFORSCHUNG (DIURESIS INVESTIGATION).** Heilmeyer, L., E. S. Mazzei, H. J. Holtineier and F. Mariongiu. Stuttgart, Georg Thieme Verlag, 1967. 302 pp.

See also: 5168,5211,5430

## Stomach

**5223 RELATIONSHIP OF CONDITIONED ANXIETY TO STOMACH ULCERATION AND ACIDITY IN RATS.** *(E.)* Mikhail, A. A. (U. Manitoba, Winnipeg, Canada). *J Comp Physiol Psychol* 63(4):623-626, 1969.

The effects of conditioned anxiety on gastric ulceration and acidity were tested. In the first experiment 24 male MNR rats weighing an average of 250 g were subjected to short, intermittent light exposures with half randomly given concomitant shocks. The effect of body casting as an ulcerogenic agent was then studied with and without the light stimulus. In the second experiment with 16 male Sprague-Dawley rats weighing 216 to 255 g a similar exposure pattern was established and acid volume and pH were measured after pyloric ligation in control and light stimulated animals. The view that conditioned anxiety promotes ulcer formation was not conformed since it was found that both ulceration and acidity of conditioned groups of rats were not greater than those of controls. The findings were considered in the framework of the physiological influence of the sympathetic system on gastric function. The inhibitory effects of sympathetic activity on gastric secretions which are usually associated with acute anxiety do not provide support for a positive relationship between conditioned anxiety and gastric ulceration.

**5224 RADIOIMMUNOASSAY OF GASTRIN: SPECIFICITY OF GASTRIN ANTISERA.** *(E.)* Jeffcoate, S. L. (Novo Res. Inst., Copenhagen, Denmark). *Scand J Gastroent* 4(5):457-461, 1969.

Antisera (chicken and rabbit) for use in a gastrin radioimmunoassay were prepared in 2 ways and their specificity compared. Antibodies to porcine antral gastrin were found to be specific for the N-terminal portion of the molecule; there was no cross-reaction with pentagastrin or pancreozymin. Antibodies to the C-terminal gastrin tetrapeptide, however, cross-reacted with pentagastrin and pancreozymin on an equimolar basis. Neither antiserum cross-reacted with secretin, insulin, or glucagon. The gastrin-specific antiserum can be used in a sensitive and specific radioimmunoassay for gastrin. This study also confirms that antisera are very readily obtained after immunization with tetragastrin coupled to a larger protein.

**5225 EFFECT OF AIR-CRAFT NOISE ON GASTRIC FUNCTION.** *(E.)* Kim, C. Y. (Yonsei U. Coll. Med., Seoul, Korea), J. S. Ryu and S. S. Hong. *Yonsei Med J* 9(2):149-154, 1968.

Thirty three healthy young men and 6 mongrel dogs (10-15 kg) with gastric fistulae were stimulated by the noise of 100 to 120 phons from a F-86F jet engine. The basal secretion of gastric juice in the dogs was little changed, but in human subjects the secretion of gastric juice was altered as follows; 10 (30.3%) of the 33 subjects showed an increased acid output, 21 (63.6%) showed a decrease and 2 (6%) showed no change. The basal resting secretion of those with decreased acidity from noise exposure was higher than that of those with increased acidity. Gastric motility was greatly inhibited by exposure to noise in both dogs and humans but the inhibition was more sensitive and more prolonged in humans. Albino rats (200 g) fed a synthetic diet were placed under conditions of repeated noise for either short or long periods following the establishment of gastric ulcers by the procedure described by Shay et al. The prevalence of ulcer lesions was increased and the severity of the lesion was enhanced in rats exposed to noise for either short or long periods.

**5226 GASTRIC FUNCTION TESTS CORRELATED TO ABH BLOOD GROUP SUBSTANCES IN GASTRIC JUICE.** *(E.)* Fischermann, K. (Glostrup Hosp., Copenhagen, Denmark), J. Andersen, P. Petersen and P. Rodbro. *Scand J Clin Lab Invest* 20(2):202-206, 1967.

A consecutive series of 28 surgical patients (21 males, 7 females; ages 26-85) with various gastrointestinal disorders was used to compare the function of the chief cell with the function of the parietal cell, and to correlate the results with the presence of parietal cell antibodies (PCA) in serum and ABH blood group substances in gastric juice. A close relationship was shown between the secretion of hydrochloric acid and of intrinsic factor (after histamine stimulation), and of uropepsinogen excretion. Only 2 out of 9 patients with gastric cancer had free acid in the gastric juice; but free acid was found in 4 out of 5 patients with cardiac cancer, 3 of whom had a normal acid secretion. PCA were found in only 2 patients, 1 with duodenal and 1 with gastric cancer. Both of these patients had achlorhydria and a very low intrinsic factor secretion. The excretion of uropepsinogen was higher in group of patients with free acid in gastric juice than in the group without. There may be a close correlation between gastric acid production and the genetically determined ABH blood group secretor status, since 8 of the 15 patients with free acid in gastric juice were nonsecretors, while only 2 of the 13 patients with hypo- and achlorhydria were nonsecretors. The results of ABH secretor status in saliva and gastric juice were identical.

**5227 THE CORRELATION BETWEEN GASTRIC ACID SECRETION AND HISTOLOGY OF FUNDIC AND ANTRAL GLAND AREA.** *(E.)* Konturek, S. J. (Med. Sch., Krakow, Poland) and A. Urban. *Scand J Gastroent* 4(5):463-468, 1969.

Ninety-two hospitalized patients (22-42 yr old), 47 with duodenal ulcer, 12 with gastric ulcer, 13 with chronic gastritis, and 20 with diabetes mellitus were selected for this study of the correlation between gastric acid secretion stimulated by pentagastrin or histamine, and the histology of the fundic and antral mucosa. The basal acid secretion and that stimulated maximally by histamine and pentagastrin decreased significantly with increased severity of atrophic changes in the fundic gland area. Antral mucosal damage, including severe atrophic changes, did not seem to have any influence on gastric acid secretory capacity. In 72% of the cases, histological changes of antral mucosa were of similar degree to those in the fundic gland area. In the remainder, antral mucosa showed inflammatory or atrophic changes more advanced than in the fundic gland area.

**5228** **BIOCHEMICAL AND CYTOLOGICAL ALTERATIONS IN GASTRIC MUCOSA OF GUINEA PIGS UNDER RESTRAINT STRESS.** *(E.)* Ludwig, W. (Cornell U. Med. Coll., New York, N. Y.) and M. Lipkin. *Gastroenterology* 56(5):895-902, 1969.

Immobilization of adult male guinea pigs (300-305 g) was a reliable and useful method for the production of gastric and duodenal erosions. The number of animals developing stress erosions increased progressively with time and reached 90% in 40 hr. During the development of the erosions, some animals developed many lesions, while others developed none. Immobilization caused rapid degranulation of the mast cells of the gastric mucosa. There was, however, no correlation between the reduction in mast cells and the occurrence of erosions in individual animals. Acid concentration and volume of gastric juice in the stomach at the time of sacrifice were not significantly different in restrained animals with and without lesions or in fasted controls. Periodic acid-Schiff positive mucosubstances in surface cells of the gastric mucosa appeared to decrease after 18 hr of stress. A progressive decrease in DNA synthesis during stress and a loss of RNA from the gastric tissue were also observed.

**5229** **EFFECT OF CHOLECYSTOKININ AND CAERULEIN ON GASTRIN AND HISTAMINE-EVOKED GASTRIC SECRETION.** *(E.)* Stening, G. F. (U. California Sch. Med., Los Angeles), L. R. Johnson and M. I. Grossman. *Gastroenterology* 57(1):44-50, 1969.

Secretion was collected from the Heidenhain pouches of 8 dogs (13-23.5 kg) 4 having gastric fistulas as well. Cholecystokinin (CCK) given as an i.v. infusion of 4 U/kg/hr (gastric fistula open) or a rapid i.v. injection of 4 U/kg (no gastric fistula) markedly inhibited gastrin (0.8 g/kg/hr) stimulated secretion. The effect of a rapid i.v. injection of 4 U/kg CCK on the gastric secretion evoked by a histamine stimulus (no gastric fistula) depended on the dose of histamine. With low doses of histamine dihydrochloride (0.01 to 0.02 mg/kg/hr) some dogs showed inhibition, and others, slight stimulation or little change. CCK doubled the acid response to 0.04 mg/kg/hr of histamine diHCl and slightly increased that to 0.08 mg/kg/hr. The enhanced response with CCK never significantly exceeded those obtained with maximal doses of histamine. Because CCK is not a pure substance the experiments were repeated with caerulein, a compound similar to CCK in both structure and action, and the effects were similar in both kind and magnitude. CCK inhibits gastrin-stimulated secretion and the increased secretion produced by intermediate doses of histamine.

**5230** **A CONFIRMATION OF ELECTROGENICITY OF FROG GASTRIC MUCOSA BY USING METHOXYFLURANE.** *(E.)* Schwartz, M. (Dept. Engin. Physics, U. Louisville, Ky.) and T. N. MacKreel. *Proc Soc Exp Biol Med* 130(4):1048-1051, 1969.

Methoxyflurane (0.2-0.6%) was used to confirm the electrogenicity of frog gastric mucosa placed in $Cl^-$-free preparations in which the nutrient bathing solution contained (mM): Na+, 101; $K^+$, 4; $Ca^{++}$, 1; $Mg^{++}$, 0.8, $SO_4^-$, 41.3; $HCO_3^-$, 25; phosphate, 1; glucose, 10; and sucrose, 40; and the secretory solution: Na+, 100; $SO_4^-$, 50; and sucrose, 100. Continuous gassing with methoxyflurane increased the resistance (change in the potential difference per unit of applied current) about 22% above the control level at the time the $H^+$ secretory rate decreased to zero. In 6 experiments, the resistance increase ranged from 20 to 80% (average, 50%). Removal of methoxyflurane returned the parameters to the control levels. This anesthetic revealed the linear correlation between the potential difference and $H^+$ rate and permitted estimates of the parameters of the $H^+$ secretory mechanisms in $Cl^-$-free solutions.

**5231** **COMPARISON OF GASTRIN AND HISTAMINE ON GASTRIC MUCOSAL BLOOD FLOW.** *(E.)* Jacobson, E. D. (U. Oklahoma Med. Ctr., Oklahoma City) and A. C. K. Chang. *Proc Soc Exp Biol Med* 130(2):484-486, 1969.

Mucosal blood flow in the innervated stomach of 10 conscious dogs was studied during stimulation of secretion with histamine and with natural and synthetic gastrins. In one series of 5 dogs in which histamine (0.25-1.0 mg/hr) and extracted gastrin (5-20 g/hr) were contrasted, the ratio of gastric mucosal blood flow to secretory rate was significantly greater with histamine at comparable secretory rates. In the remaining 5 dogs, the ratio was also significantly greater with histamine than with synthetic gastrin-like peptide (5-10 μg/hr). The ratios in the 2 series of animals during histamine stimulation were significantly different (42 ± 4 versus 48 ± 2, $p < 0.05$); however, the secretory rates in the 2 series were not comparable (4.7 ± 0.4 versus 2.8 ± 0.3 mEq/15 min, $p < 0.01$). Previous studies have shown that there is a decline in the measured ratios as secretory rates increase.

**5232** **THE EFFECT OF CHOLINERGIC AND ADRENERGIC BLOCKAGE ON BASAL AND PENTAGASTRIN-INDUCED ACID SECRETION.** *(E.)* Konturek, S. J. (Med. Sch., Krakow, Poland) and J. Oleksy. *Scand J Gastroent* 4(1):13-16, 1969.

Basal acid secretion and the dose-response curve to pentagastrin were studied before and after graded doses of atropine and propranolol in 20 patients with inactive duodenal ulcer. Atropine sulfate was injected s.c. in doses of 12.5, 25, or 50 μg/kg 30 min before pentagastrin infusion was begun. Propranolol was injected i.v. in doses of 30, 60, or 90 μg/kg. Each patient was examined 4 times; the dose-response curve to pentagastrin alone was obtained, and then the procedure was repeated 3 times with the grade doses of the agent. Atropine in a dose of 12.5 μg/kg depressed basal acid output by an average of 73%, in a dose of 25 μg/kg by 79%, and in a dose of 50 μg/kg by 74%. Two patients developed basal achlorhydria after atropine. The s.c. administration of atropine lowered the response curve to pentagastrin and shifted its peak to the right. Beta adrenergic blockage with propranolol resulted in a slight but significant increase in the basal rate of acid secretion. The dose response curve to pentagastrin with propranolol did not differ markedly from the dose response curve to pentagastrin alone. The peak of the curve with pentagastrin was with a dose of 2.0 μg/kg/hr in 2 patients and a dose of 8.0 μg/kg/hr in 8. The maximum acid response to pentagastrin with propranolol was obtained with 2.0 μg/kg/hr.

**5233** **EFFECTS OF GASTRIN ON ACID AND PEPSIN SECRETION IN PYLORUS-LIGATED RATS.** *(E.)* Mignon, M. (U. Washington Sch. Med., Seattle),

L. S. Semb, T. L. Fletcher, H. N. Harkins and L. M. Nyhus. *Scand J Gastroent* 4(1):33-37, 1969.

Pylorus ligation was performed on white male Wistar rats. The stomach was not washed and evaluated by direct visualization and palpation. If the stomach was not empty it was discarded and not included in the study. Titration for acidity and determinations for pepsin were carried out. Gastrin was prepared from hog antral mucosa and was all from the same batch. It was injected either s.c. or i.v. in doses ranging from 0.1 mg to 40 mg/100 g dissolved in 0.9% saline. Controls received 0.9% saline, 1 ml/100 g. While 1 ml gastrin s.c. was ineffective, 5 ml induced a marked increase in volume and concentration of acid which was statistically highly significant ($p < 0.001$). Doses of 10 and 40 mg gastrin further increased acid concentration as compared to the 5 mg dose and the difference between the 10 mg and the 5 mg was statistically highly significant ($p < .05$) while the 40 mg dose was not. As 1 mg dose of gastrin s.c. markedly increased pepsin concentration and doses of 5 and 10 mg stimulated pepsin output, 5 mg inducing the larger response. The difference was statistically significant for both 5 and 10 mg ($p < 0.01$). A significant fall in pepsin concentration was caused by 40 mg and a low output similar to control. After i.v. injection of gastrin, regardless of dose, there was no statistically significant increase in volume or concentration of acid, but there was also no inhibition of acid secretion. No stimulation of pepsin secretion was observed with dosages of 0.1 mg, 0.5 mg, or 1 mg gastrin. Pepsin secretion was stimulated ($p < 0.01$) by 5 mg i.v.

### 5234 GASTRIC SECRETION IN CANINES WITH CIRRHOSIS AND ASCITES. *(E.)*

Baddeley, R. M. (U. Birmingham Med. Sch., England), J. Fejfar and J. Evans. *Surg Gynec Obstet* 129(4):697-704, 1969.

With the use of a composite model of cirrhosis in the dog, gastric acid and pepsin secretion from Heidenhain pouches were measured during control periods and phases of cirrhosis and of cirrhosis with portal hypertension and ascites. Biopsies of the gastric antrum were histochemically examined for changes in mucosubstances. Acid hypersecretion was noted during the phase of cirrhosis, but this change was reversed with the onset of postsinusoidal portal hypertension and ascites. Pepsin secretion remained unchanged in 3 of 5 dogs during the cirrhotic phase but decreased in all 5 dogs during the ascitic phase. The impairment of acid secretion during the cirrhotic ascitic phase was not due to hypoalbuminemia or hyperaldosteronism but may be related to a deficiency in body potassium stores. Soon after the onset of acid hypersecretion, increased staining with alcian blue was seen in the pyloric gland cells and to a lesser extent in the surface epithelial cells of the gastric antrum. This persisted during the phases of cirrhosis and of cirrhosis, portal hypertension, and ascites, signifying an increased content of strongly acidic sulfomucins in the antral mucosubstances.

### 5235 INHIBITION OF GASTRIC SECRETION IN MAN BY INTESTINAL FAT INFUSION. *(E.)*

Windsor, C. W. O. (Queen Elizabeth Hosp., Birmingham, England). *Gut* 10(2):135-142, 1969.

A simple method for assessing the inhibitory capacity of the duodenum and small intestine in man was studied in 8 patients who served as controls (hiatus hernia in 2, X-ray negative dyspepsia in 4, irritable colon syndrome in 2), in 6 with duodenal ulcers verified at operation, in 6 with small intestine diseases (steatorrhea in 3, regional enteritis in 2, resection of the terminal ileum for ischemia in 1) and in 2 patients before and after vagotomy and pyloroplasty. An emulsion of ground nut oil was infused into the small intestine while gastric secretion induced by a continuous pentagastrin infusion was measured. A consistent and immediate reduction of acid and pepsin secretion persisted in most cases for at least 40 min. The mean reduction in output of acid in the control group was 59%, in duodenal ulcer 70%, and in the group with miscellaneous small bowel disorders, 50%. There seemed to be no reduction of the inhibitory capacity in duodenal ulcer with respect to fat. Comparison of the characteristics of the inhibition in man with that reported in animals shows it to be similar in all respects. The agent responsible probably acts at parietal cell level since inhibition was evident even during a continuous infusion of pentagastrin.

### 5236 OSMOTIC CONCENTRATION OF THE GASTRIC JUICE OF DOGS. *(E.)*

Altamirano, M. (Escuela de Medicina, Universidad Central de Venezuela, Caracas), E. Izaguirre and E. Milgram. *J Physiol* 202(2):283-296, 1969.

The freezing point of the gastric juice, produced by histamine stimulation in anesthetized (mongrel) dogs, (8 to 15 kg) of the arterial plasma, and of the plasma obtained from a gastric vein were measured and used to compute molality. The osmolality of the blood that passes through the gastric mucosa increases during secretion of acid juice. The amount of water that should be removed from the arterial plasma to obtain a solution isosmolal to the gastric venous plasma was found to be equivalent to the amount of water required to dilute the secreted $H^+$. The increase in osmolality of the venous plasma is a consequence of the clearance of water free of solute by the gastric mucosa. The gastric juice was hypoosmotic to the venous plasma in 20 of 30 dogs, being isosmotic to that plasma in 7 dogs. The 'primary' acid juice is usually hypoosmotic to the extracellular fluid in the vicinity of the oxyntic cells.

### 5237 THE DURATION OF REDUCTION IN ACID SECRETION PRODUCED BY POLDINE METHYLSULPHATE. *(E.)*

Dean, A. C. B. (Royal Infirm., Edinburgh, Scotland), N. D. C. Finlayson, I. M. Murray-Lyon and D. J. C. Shearman. *Digestion* 2(4):215-220, 1969.

The effects of poldine methylsulphate on the basal and stimulated output of acid from the stomach when given for 30-279 days in doses sufficient to produce mild continuous side effects have been studied in 27 patients with duodenal ulceration. Twelve hr after the last dose of poldine the mean reduction in stimulated acid output was 36% ($P > 0.01$). Twenty-four hr after the last dose of poldine the proportion of patients showing a reduction was smaller, the mean reduction being 12% ($P > 0.4$). The fact that reduction in acid output may last for 7 days should be allowed for in measuring gastric secretion in patients already receiving treatment with this drug.

### 5238 A STUDY OF GASTRIC SECRETION INDUCED BY CLOSE ARTERIAL INFUSIONS OF HISTAMINE IN THE DOG. *(E.)*

Stavraky, G. W. (Fac. Med., U.

Western Ontario, London, Canada), J. R. Knill and R. B. Currie. *Canad J Physiol Pharmacol* 47(6):533-543, 1969.

The effects of close arterial infusions of progressively increasing quantities of histamine into different regions of a denervated total stomach pouch in male mongrel dogs, weighing 10 to 16 kg, were compared with the effects of infusions of histamine into the splenic vein in dogs under chloralose-urethane anesthesia. Infusions of 0.5 mg/h and 2.0 mg/h of histamine into the left gastric artery (lesser curvature of the stomach) were more effective than were the infusions of the same solutions into the gastrosplenic artery (greater curvature) as shown by shorter latency to the appearance of free HCl and by a greater volume of secretion and total acid output per $cm^2$ of mucosa. Infusions of excessive quantities of histamine (32.0 mg/h) resulted in a reversible inhibition of HCl output as observed on the lesser curvature. The peptic activity of the gastric juice was low and decreased progressively with increasing amounts of infused histamine. Systemic blood histamine concentrations did not change during infusions of 0.5 mg/h or 2.0 mg/h of histamine into the gastric arteries or splenic vein; infusions of larger amounts of histamine (8.0 mg/h and 32.0 mg/h) resulted in a penetration of histamine into the general circulation and in systemic effects. These effects appeared earlier and with smaller quantities of histamine when the latter was infused into the portal vein close to the liver than when administered into the splenic vein as judged by the appearance of free HCl in the gastric contents.

5239 **EFFECTS OF ADRENERGIC DRUGS UPON GASTRIC SECRETION IN RATS.** *(E.)* Misher, A. (Smith, Kline French Lab., Philadelphia, Pa.), R. G. Pendleton and R. Staples. *Gastroenterology* 57(3):294-299, 1969.

5240 **ALTERATIONS IN GASTRIC SECRETION AFTER PORTACAVAL SHUNTING.** *(Rev.)(E.)* Thompson, J. C. (UCLA Sch. Med., Los Angeles, Calif.). *Amer J Surg* 117(6):854-865, 1969.

5241 **THE RELATIONSHIP OF GASTRIC HYPERACIDITY TO HYPERPLASIA OF BRUNNER'S GLANDS. [CASE REPORT]** *(E.)* Kaplan, E. L. (Michael Reese Hosp., Chicago, Ill.), W. L. Dyson and W. T. Fitts Jr. *Arch Surg (Chicago)* 98(5):636-639, 1969.

5242 **THE EFFECTS OF VAGOTOMY ON GASTRIN PRODUCED DUODENAL ULCERS.** *(E.)* Adkins, R. B. Jr. (VA Hosp., Nashville, Tenn.), J. W. Green, M. P. Kaplan and W. G. Gobbel Jr. *Arch Surg (Chicago)* 99(1):6-8, 1969.

5243 **GASTRIC SECRETION AND CHRONIC HYPERPARATHYROIDISM.** *(E.)* Patterson, M. (U. Texas Med. Br., Galveston), F. Wolma, A. Drake and H. Ong. *Arch Surg (Chicago)* 99(1):9-14, 1969.

5244 **EFFECT OF CORTISONE AND CORTICOTROPIN ON GASTRIC SECRETION AND PEPTIC ULCERATION IN THE DOG.** *(E.)* Nicoloff, D. M. (VA Hosp., Minneapolis, Minn.). *Arch Surg (Chicago)* 98(5):640-644, 1969.

5245 **GASTRIN AND HISTAMINE.** *(Dut.)* Aarsen, P. N. (Pharmacol. Lab., U. Amsterdam, Netherlands). *Nederl T Geneesk* 112(26):1220-1223, 1969.

5246 **EFFECTS OF PENTAGASTRIN ON STOMACH SECRETION AND SHAY-ULCERS IN RATS.** *(Hun.)* Kisfalvi, I. and I. Kenderessy. *Kiserl Orvostud* 21(4):425-429, 1969.

5247 **DETECTION OF HISTAMINE IN VENOUS BLOOD FROM THE STOMACH DURING ACID SECRETION EVOKED BY INTRAVENOUS PENTAGASTRIN.** *(E.)* Caridis, D. T. (U. Aberdeen, Scotland), J. F. Porter and G. Smith. *Lancet* 1(7555):1281-1282, 1968.

5248 **INTRAGASTRIC BUFFERING CHARACTERISTICS OF A NEW CONCENTRATED ANTACID.** *(E.)* Danhof, I. E. (Southwestern Med. Sch., Dallas, Texas) and H. M. Leyland. *Curr Ther Res* 11(8):506-509, 1969.

5249 **GASTRIC ACID SECRETION AND THE ALKALINE TIDE.** *(E.)* Dorry, K. (Fac. Med., U. Alexandria, Egypt), A. Abdel-Maksoud, A. El-Guindi, I. Fahmy, M. El-Sayed and M. Wahdan. *Acta Gastroent Belg* 32(4/5):306-314, 1969.

5250 **USE OF THE HEIDELBERG pH CAPSULE IN THE ROUTINE ASSESSMENT OF GASTRIC ACID SECRETION.** *(E.)* Stack, B. H. R. (U. Coll. Hosp., London, England). *Gut* 10(3):245-246, 1969.

5251 **INHIBITION OF GASTRIN ACTIVITY BY INCUBATION WITH ANTIBODIES TO THE C-TERMINAL TETRAPEPTIDE OF GASTRIN.** *(E.)* Jaffe, B. M. (Washington U. Sch. Med., St. Louis, Mo.), W. T. Newton and J. E. McGuigan. *Surgery* 65(4):633-639, 1969.

5252 **THE EFFECT OF VALIUM ON BASAL GASTRIC SECRETION IN RATS.** *(E.)* Birnbaum, D. (Hebrew U. Hadassah Med. Sch. Jerusalem, Israel). *Med Psicosom* 13(1/2):245-249, 1968.

5253 **GASTRIN: IMMUNOCHEMICAL PROPERTIES AND MEASUREMENT BY RADIOIMMUNOASSAY.** *(E.)* Charters, A. C. (UCLA Sch. Med., Calif.), W. D. Odell, W. D. Davidson and J. C. Thompson. *Surgery* 66(1):104-110, 1969.

5254 **THE INFLUENCE OF TIME AND TEMPERATURE ON THE DIGESTIVE EFFECT OF HUMAN GASTRIC JUICE OF VARYING PEPTIC ACTIVITY AND pH-CONCENTRATION ON LIVING TISSUE. I. MACROSCOPIC FINDINGS.** *(Ger.)* Konrad, R. M. (Surg. Clin., U. Düsseldorf, Germany) and F. Sadra. *Langenbeck Arch Klin Chir* 324(1):60-69, 1969.

5255 **THE INFLUENCE OF TIME AND TEMPERATURE ON THE DIGESTIVE EFFECT OF HUMAN GASTRIC JUICE OF VARYING PEPTIC ACTIVITY AND pH-CONCENTRATION OF LIVING TISSUE. II. SPECTROPHOTOMETRIC FINDINGS.** *(Ger.)* Konrad, R. M.

(Surg. Clin., U. Düsseldorf, Germany) and F. Sadra. *Langenbeck Arch Klin Chir* 324(1):70-77, 1969.

5256 ANALYSES OF THE PERIODIC GASTRIC JUICE SECRETION IN UNCONSCIOUS PATIENTS. *(Ger.)* Neuhaus, G. (1st Med. Clin., Free U. Berlin, Germany) and U. Humpert. *Verh Deutsch Ges Inn Med* 73(4):654-658, 1967.

5257 DIAGNOSIS AND THERAPY OF STOMACH SECRETION– AND MOTILITY DISTURBANCES. (REPORT ON THE FINDINGS OF STOMACH MUCOSA SECRETION INFLUENCED BY A VASOACTIVE SUBSTANCE). *(Ger.)* Poser, G. (Med. Polyclin., U. Freiburg, Germany) and D. P. Mertz. *Verh Deutsch Ges Inn* 73(4):273-278, 1967.

See also: 5093,5094,5116,5136,5169,5184,5190,5199,5200,5225,5406,5416,5432,5465,5540,5562,5582,5595

5258 **KININ PRECURSOR IN EXPERIMENTAL PANCREATITIS.** *(E.)* Nugent, F. W. (Dept. Gastroent., Lahey Clin. Found., Boston, Mass.), S. Zuberi and M. B. Bulan. *Proc Soc Exp Biol Med* 130(2):566-567, 1969.

The role of kinin peptides as humoral mediators in acute pancreatitis was studied in 10 splenectomized dogs in which pancreatitis was induced by the intraductal infusion of a 20 ml mixture of 4% sodium taurocholate and 400,000 U of trypsin adjusted to pH 8. A decrease (31.1% average) in the total circulating kininogen pool was demonstrated in all dogs during the first 6 hr of experimental pancreatitis. Plasma volume decreased an average of 28% and blood volume 19%. The hematocrit rose from an average control level of 40.4-48.8%. Circulating kininogen concentration averaged 1.49% μg/ml in control specimens and 1.44 μg/ml in the 6 hr specimens, a decrease of 3.4%. In 3 dogs in which peritoneal fluid was collected, kininogen concentration in the fluid was constant, averaging 1.08 μg/ml. Simple shift of kininogen from plasma to peritoneal fluid may account for the kininogen lost from the plasma while kininogen may be returned to the circulating plasma by way of lymphatic drainage, thus raising the plasma level.

5259 **EFFECT OF PILOCARPINE AND PANCREATECTOMY ON AMYLASE AND LIPASE LEVELS OF SERUM AND HEPATIC LYMPH.** *(E.)* Singh, H. (Hahnemann Med. Coll., Philadelphia, Pa.) and H. A. Appert. *Proc Soc Exp Biol Med* 130(4):1122-1125, 1969.

Enzyme levels were studied in normal and pancreatectomized dogs in order to evaluate the effect of pilocarpine on the production of serum enzymes by the liver and the pancreas. In addition, the enzyme levels of the hepatic and portal blood were studied in order to determine the relative importance of the venous versus the lymphatic pathways. In 6 dogs given pilocarpine (20 mg diluted in 200 ml normal saline, i.v. for 40 min), amylase and lipase concentration in the serum and hepatic lymph collected in the portal area was significantly increased. No significant change occurred in 4 pancreatectomized dogs similarly treated with pilocarpine. Pilocarpine infusion did not cause any significant change in the hepatic lymph flow. The higher enzyme concentrations after pilocarpine stimulation in portal venous blood in comparison with femoral venous blood suggests that a portion of the enzymes passing into the portal blood is taken up by the liver.

5260 **SYSTEMIC MANIFESTATIONS OF ACUTE PANCREATITIS EFFECTS OF THE INTRAVENOUS INFUSION OF PANCREATIC JUICE IN DOGS.** *(E.)* Yacoub, R. S. (Hahnemann Med. Coll., Philadelphia, Pa.), H. E. Appert, F. W. Pairent and J. M. Howard. *Arch Surg (Chicago)* 99(1):47-53, 1969.

The i.v. infusion of fresh pancreatic juice in dogs resulted in a momentary drop in arterial blood pressure whether the juice was administered into the same donor or into another. The hypotension has no relation to the content of amylase or lipase in the infused juice. In the postinfusion period, high serum levels of these 2 enzymes persisted when the blood pressure had returned to its preinfusion level. When the trypsinogen of the infused juice was activated to trypsin by enterokinase before infusion, the resulting hypotension was more pronounced than after the infusion of the nonactivated juice. Although hypotension was more pronounced and more prolonged after the infusion of juice with the higher trypsin content, no proportionate relationship between the dose of trypsin injected and the extent or duration of the resultant hypotension could be established. Aprotinin failed to abolish or ameliorate the hypotensive action of the pancreatic juice although *in vitro* experiments showed that it inactivated the proteolytic activity of trypsin. The hypotensive factor or factors in the pancreatic juice are partly thermolabile, suggesting that one or more is a protein. If trypsin is the cause of the hypotension it probably does not exert this effect as a proteolytic enzyme. Trypsin may be one, but not the only, hypotensive factor.

5261 **INTRA-ARTERIAL PERFUSION OF PANCREATIC JUICE IN THE HIND LIMB OF DOGS. EFFECTS ON THE PERIPHERAL VASCULAR RESISTANCE.** *(E.)* Yacoub, R. S. (Hahnemann Med. Coll., Philadelphia, Pa.), H. E. Appert and J. M. Howard. *Arch Surg (Chicago)* 99(1): 40-46, 1969.

The intra-arterial perfusion of pancreatic juice produced a drop in the arterial pressure of the perfused limb of the dog. The drop in the perfused femoral arterial pressure preceded a systemic hypotension. This hypotension may be due to a peripheral action of the pancreatic juice producing a vasodilatation through liberation of vasoactive kinins from their kininogen precursors. The increase in bradykinin levels and decrease in bradykininogen levels in the venous drainage of the limb during the period of hypotension confirms this hypothesis. Trypsin in the pancreatic juice can activate kininogen. Although nonactivated trypsin-free pancreatic juice produced a fall in the arterial pressure of the perfused limb, the activated trypsin-containing pancreatic juice produced a greater and more prolonged hypotension. Aprotinin, as a trypsin inhibitor, however, failed to prevent this hypotensive property of the pancreatic juice, although *in vitro* it counteracted the proteolytic activity of trypsin. Carboxypeptidase-B, a bradykinin inhibitor, whether incubated with the pancreatic juice or given to the animal as pretreatment, did not, under the conditions of the study, prevent the hypotension.

5262 **PANCREATIC CONCENTRATION OF $^{125}$I-LABELED PHENYLALANINE IN MICE.** *(E.)* Varma, V. M. (U. Michigan, Ann Arbor), W. H. Beierwaltes, L. M. Lieberman and R. E. Counsell. *J Nucl Med* 10(5):219-223, 1969.

Ten μCi of $^{14}$C-labeled-phenylalanine were administered by intracardiac (i.c.) injection to 3-5 week-old C57 BL/6J black mice with B-16 melanoma. A 10 μCi i.p. dose of $^{125}$I-NaI or ortho, meta or para $^{125}$I-iodophenylalanine was administered to similar mice. Scintillation counting revealed the greatest concentration of $^{14}$C radioactivity in the pancreas within 2 hr. At that time it was 3 times that in the kidney and 5 times that in the liver. Pancreatic radioactivity decreased at later intervals while thyroid gland concentrations gradually rose to higher levels than observed in all other organs. The mean concentration of $^{125}$I in the pancreas after $^{125}$I-*o*-iodophenylalanine was highest in 4 hr, next highest at 2 hr, and lowest at

24 hr. At 4 hr the pancreatic concentration was about 9 times that in liver and 6 times that in the kidney. The concentration in the washed bladder at 4 hr was slightly greater than that of the pancreas. Thyroid counts were lower than those of the pancreas at 2 and 4 hr, but were 2 times that of the pancreas at 24 hr. Thyroid counts were 90 times greater at 2 hr after the administration of $^{125}$I as $^{125}$I-NaI than with $^{125}$I-*o*-iodophenylalanine. The uptake of the meta and para compounds was similar to that of $^{125}$I-*o*-iodophenylalanine. The pancreatic concentration of $^{125}$I after i.c. injection of $^{125}$I-*p*-iodophenylalanine was almost 3 times greater than that after i.p. injection.

5263 **METABOLISM OF PANCREATIC AMYLASE AND LIPASE INFUSED INTRAVENOUSLY INTO DOGS.** *(E.)* Yacoub, R. S. (Hahnemann Med. Coll., Philadelphia, Pa.), H. E. Appert and J. M. Howard. *Arch Surg (Chicago)* 99(1):54-58, 1969.

Canine pancreatic amylase and lipase, injected into dogs, disappeared from the plasma without being recovered in the urine. This was observed over a wide range of enzyme doses. Immediately after injection of pancreatic juice or homogenate, the amount of amylase in the plasma was significantly less than the amount or activity injected, whereas the amount of lipase was significantly greater than that injected. Thereafter, the plasma concentration of both enzymes gradually decreased, the half-life of each enzyme ranging around 3 hr. The rate of disappearance of amylase and lipase was independent of the amount of enzyme infused. *In vitro* studies indicated that dilution of pancreatic juice with urine, plasma, or whole blood did not inactivate or potentiate the amylase activity of the juice, but plasma significantly potentiated the activity of lipase. Potentiation of the lipase activity does not result from dilution *per se* (phosphate buffer).

5264 **SECRETIN-LIKE CHOLERESIS PRODUCED BY A DIARRHEOGENIC NON-BETA ISLET CELL TUMOR OF THE PANCREAS.** *(E.)* Tompkins, R. K. (Ohio State U. Coll. Med., Columbus), A. R. Kraft and R. M. Zollinger. *Surgery* 66(1):131-137, 1969.

5265 **PANCREATIC GLUCAGON SECRETION IN NORMAL AND DIABETIC SUBJECTS.** *(E.)* Aguilar-Parada, E. (VA Hosp., Dallas, Texas), A. M. Eisentraut and R. H. Unger. *Amer J Med Sci* 257(6):415-419, 1969.

5266 **PEPTIDE-SECRETING TUMORS WITH SPECIAL REFERENCE TO THE PANCREAS.** *(Rev.)(E.)* Sircus, W. *Gut* 10(7):506-515, 1969.

5267 **THE BIOLOGICAL ROLE OF ZINC IN THE LANGERHANS ISLANDS OF THE PANCREAS.** *(Bul.)* Petkov, P. Ie. (Higher Med. Inst., Sofia, Bulgaria) and R. G'l'bova. *Suvr Med (Sofiia)* 19(3):222-227, 1968.

5268 **THE PANCREAS IN IRON METABOLISM. [EDITORIAL]** *(It.)* Dobrilla, G. (Inst. Special. Med. Pathol., U. Padua, Italy). *Recent Progr Med (Roma)* 42(5):523-526, 1967.

5269 **ACINO-INSULAR RELATIONSHIP IN THE PANCREAS OF THE TOAD INVESTIGATED WITH THE ELECTRON MICROSCOPE.** *(E.)* Prieto-Díaz, H., E. (Dept. Med., U. Nacional, La Plata, Argentina), F. C. Iturriza and R. R. Rodríguez. *Acta Anat* 67(2):291-303, 1967.

5270 **PANCREAS SECRETION AFTER REPEATED ETHER IRRITATION.** *(Ger.)* Buhac, I. (Dr. Novosel Hosp., Zagreb, Yugoslavia) and D. Popovic. *Verh Deutsch Ges Inn Med* 73(4):287-289, 1967.

5271 **METABOLITE STATUS, RNA CONTENT AND EXCRETION FUNCTION OF THE CAT PANCREAS DURING INFUSION OF TISSUE HORMONES AND ISCHEMIC STRESS.** *(Ger.)* Thorn, W. (Chem. Inst., U. Hamburg, Germany), F. Liemann, R. Hirsch and K. Straub. *Arzneimittelforschung* 17(12):1469-1472, 1967.

5272 **PRIMARY HYPERPARATHYROIDISM AND PANCREAS SECRETION FUNCTION. I. SECRETIN-PANCREOZYMIN TEST FOR BICARBONATE AND ENZYME SECRETION.** *(Ger.)* Goebell, H. (Med. U. Clin., Marburg, Germany), H. D. Horn and C. Bode. *Verh Deutsch Ges Inn Med* 73(4):1094-1097, 1967.

5273 **PRIMARY HYPERPARATHYROIDISM AND PANCREAS SECRETION FUNCTION. II. SECRETIN-PANCREOZYMIN TEST FOR QUANTITATIVE ELECTROLYTE SECRETION.** *(Ger.)* Horn, H. D. (Inst. Radiol., U. Saar, Homburg, Germany), H. Goebell and C. Bode. *Verh Deutsch Ges Inn Med* 73(4):1098-1101, 1967.

See also: 5362,5431,5519

5274 **LACTATE METABOLISM DURING MARGINAL LIVER PERFUSION.** *(E.)* Johnson, V. (U. Colorado Med. Sch., Denver), E. Bielanski and B. Eiseman. *Arch Surg (Chicago)* 99(1):75-79, 1969.

To determine the minimal conditions of hepatic blood flow and oxygen saturation for lactate metabolism, 22 pig livers were perfused through the hepatic artery and portal vein with blood at variable conditions of flow and oxygenation. The liver was found to retain its ability to metabolize 5 g of racemic sodium lactate when perfused with 100% oxygenated blood at total flow of 0.11 cc/g of liver/min (approximately 10% of normal hepatic blood flow). With total hepatic flow of one fifth normal (0.22 cc/g/min), lactate failed to be metabolized at oxygen saturation below 50%. A physiological rationale for the use of sodium lactate in hypovolemic shock is thus suggested, even in the presence of low hepatic blood flow and severe degrees of oxygen desaturation.

5275 **ALDOLASE ISOZYME PATTERNS IN THE LIVER OF PATIENTS WITH MALIGNANT TUMOR IN THE STOMACH OR ESOPHAGUS.** *(E.)* Ikehara, Y. (Fac. Med., Kyushu U., Fukuoka, Japan), K. Inokuchi and H. Endo. *Gann* 60(4):449-459, 1969.

The levels of 2 types of aldolase isozyme, aldolase-A (muscle type) and aldolase-B (liver type), were determined in the liver of 49 patients with malignant tumors in the stomach or the esophagus, and were compared with those of 31 patients without malignancy. Two methods were used for the differential assay of aldolase isozymes; 1 was based on the differential inactivation of aldolase-A and -B using chicken antialdolase-A, and the other was based on the different substrate specificity of aldolase-A and -B toward fructose mono- and di-phosphates. A good correlation was obtained with these 2 assay methods, but the former was found to be more sensitive than the latter to analyze alterations in the isozyme pattern, especially in the liver. Compared with patients without malignant tumor, a significant increase in aldolase-A activity was detected in the liver of patients with malignant tumors irrespective of its localization and stage.

5276 **SOME EFFECTS OF ETHANOL AND CARBON TETRACHLORIDE ON LIPOPEROXIDATION IN RAT LIVER.** *(E.)* Scheig, R. (Yale U. Sch. Med., New Haven, Conn.) and G. Klatskin. *Life Sci* 8(15):855-865, 1969.

Lipid peroxidation, as judged by the production of malonic dialdehyde, (MDA), was estimated in homogenates of male, Sprague-Dawley rat liver containing cell sap and microsomes, but no mitochondria. MDA production was enhanced by fasting donor animals, and was much greater in 400 g than in 200 g unfasted donors. While the *in vitro* addition of carbon tetrachloride ($CCl_4$) to preparation of liver from 400 g fed rats enhanced MDA production, it failed to do so in fasted animals of the same weight, or in 200 g fasted or unfasted animals. Neither the oral administration of a large dose of ethanol (7.5 mg/kg), nor the *in vitro* addition of ethanol (40 mM) increased MDA production in liver homogenates. These observations appear to be inconsistent with the view that lipid peroxidation plays a role in the development of a fatty liver following $CCl_4$ or ethanol administration.

5277 **EFFECT OF OESTROGENS AND PROGESTOGENS ON LIVER FUNCTION IN THE PUERPERIUM.** *(E.)* Clinch, J. (Welsh Natl. Sch. Med., Cardiff, England) and V. R. Tindall. *Brit Med J* 1(5644):602-605, 1969.

Twenty normal puerperal women who were breast feeding acted as a control group and normal puerperal women with lactation suppressed by either a synthetic estrogen, stilbestrol (24) or by a pure progestogen, megestrol acetate (21) were studied. A modified bromsulphthalein test was used to detect alterations in liver function in puerperal women taking a pure progestogen, megastrol acetate. The estrogen appreciably reduced the ability of the liver to excrete dye into the bile. It also significantly reduced the equivalent liver volume and the plasma clearance of dye. The progestogen did not have this effect. To the degree that these results represent liver dysfunction they are due to the estrogen component of the combined preparation.

5278 **HEPATIC PROTEIN SYNTHESIS IN RATS FORCE-FED A THREONINE-DEVOID DIET AND TREATED WITH CORTISONE ACETATE OR THREONINE.** *(E.)* Sidransky, H. (U. Pittsburgh Sch. Med., Pa.), D. S. Wagle and E. Verney. *Lab Invest* 20(4):364-370, 1969.

Rats were force-fed a threonine-devoid or a complete diet for 3 days, and then some animals received a single i.p. injection of cortisone acetate or threonine. Rats fed the threonine-devoid diet developed an increase in *in vivo* $^{14}C$-leucine incorporation into hepatic and plasma proteins compared to that in animals fed the complete diet. The administration of cortisone acetate 4 hr before killing increased hepatic and plasma protein synthesis in both control and experimental animals. Hepatic polyribosomes showed a shift toward heavier aggregates in animals fed the threonine-devoid diet which became more marked after cortisone treatment. Cortisone administration caused an increase in hepatic and plasma-free threonine levels in animals fed the threonine-free diet. Theonine administration 6 hr before killing to animals fed the threonine-devoid diet did not influence hepatic protein synthesis. Cortisone acetate can potentiate the enhanced hepatic protein synthesis induced in animals by force-feeding a threonine-devoid diet.

5279 **ON THE PROTECTIVE ACTION OF ZINC AGAINST EXPERIMENTAL LIVER DAMAGE DUE TO CHOLINE FREE DIET OR CARBON TETRACHLORIDE.** *(E.)* Saldeen, T. (Dept. Forensic Med. U. Uppsala, Sweden). *Z Ges Exp Med* 150(3):251-259, 1969.

Zinc chloride (2.0 mg/100 g body weight/day s.c.) inhibited fatty infiltration in the liver of 13 male Sprague-Dawley rats fed a choline-free diet for a 10-day period. The influence of the timing of the zinc injections and of the magnitude of the dose of zinc were also studied in Sprague-Dawley rats (4 male, 129 female) in which liver damage was induced by $CCl_4$. Moderate zinc doses had a more favorable effect on liver damage when given during the second half than during the first half of the experimental period, which may indicate that the zinc effect sets in at the regenerative phase. Female rats showed less tolerance to $CCl_4$ and large zinc doses than males. Large doses of zinc (16 mg/day) had no favorable effect and even increased liver damage.

**5280 CHOLESTEROL GALLSTONE FORMATION IN HAMSTERS CORRELATED WITH HISTOLOGICAL FINDINGS IN LIVERS AND GALLBLADDERS.** *(E.)* Togo, M. (Kyoto U. Med. Sch., Japan). *Arch Jap Chir* 38(4):565-580, 1969.

Cholesterol gallstones were produced in golden hamsters by feeding them various diets for 5-55 days. Histological findings in liver and gallbladder were correlated with the incidence of gallstones. In animals fed a high butterfat diet with glucose or α-starch as carbohydrate, there was an appreciably increased incidence of cholesterol gallstones, especially in those on the glucose butterfat diets, all of which developed cholesterol gallstones. (An incidental finding was that when straw was spread on the floor of the cages of animals fed the glucose fat free and the glucose butterfat diets, there was a marked decrease in the incidence of cholesterol gallstones.) There was no particular correlation between the kind of diet or the presence of cholesterol gallstones and hepatic fibrosis. Most of the liver sections of animals with cholesterol gallstones showed almost no inflammatory response in the parenchymal or portal areas, and the gallbladders of these animals also showed almost no evidence of inflammatory response or thickening of the walls. There was no evidence to support the view that infection is primarily associated with the occurrence of cholesterol gallstones. Slight or moderate vacuolization of the liver cell nuclei was often noted. These vacuolated nuclei occurred more often in the lithogenic diet-fed animals than in others. Fatty metamorphosis of the liver was more common in the animals fed lithogenic diets, especially butterfat diets than in others and fatty livers were frequent. In most of these fatty livers, fat droplets were distributed in the peripheral portions of the liver lobules. Hemosiderin deposits in the liver were noted in 1 animal on the glucose butter diet and in 1 on the glucose sesame oil diet; the former animal had cholesterol gallstones.

**5281 THE EFFECT OF FOUR ANOVULATORY STEROIDS ON HEPATIC FUNCTION IN RABBITS.** *(E.)* Vashishta, K. (Postgrad. Inst. Med. Ed. Res., Chandigarh, India), R. Nath, H. Datta and R. R. Chaudhury. *Indian J Med Res* 57(2):324-336, 1969.

Four oral anovulatory steroids used as contraceptive agents were fed to groups of 10 rabbits for a period of 6 weeks. Hepatic function tests (SGOT, SGPT, serum bilirubin, total protein and albumin/globulin ratio) were carried out 14 days and 7 days before beginning the treatment and 3, 8, 15, 22, 29, 36, and 43 days after treatment began. The daily doses were: lynestrenol 0.1 mg/kg and mestranol 0.003 mg/kg; norethisterone acetate 0.08 mg/kg and ethinyl estradiol 0.001 mg/kg; megestrol acetate 0.08 mg/kg and ethinyl estradiol 0.01 mg/kg; and ethynodiol (SC 11,800) 0.02 mg/kg and mestranol 0.002 mg/kg. The only change noted was a transitory rise in the serum bilirubin level in some of the animals in group 1 receiving lynestrenol and mestranol. All other tests were within normal limits.

**5282 COMPOSITION OF RAT LIVER TRIACYLGLYCEROLS AND DIACYLGLYCEROLS.** *(E.)* Åkesson, B. (Dept. Med. Chem., U. Lund, Sweden). *Europ J Biochim* 9(4):463-477, 1969.

Different fractions of male rat liver triacylglycerols and *X*-1,2-diacylglycerols were prepared by thin-layer chromatography on silver nitrate-containing silica gel. The positional distribution of fatty acids in these fractions and unfractionated triacylglycerols and diacylglycerols was analyzed by a scaled-down version of Brockerhoff's method. In both tri- and diacylglycerols, position 1 contains mainly saturated fatty acids; position 2 contains mainly unsaturated fatty acids; position 3 in triacyglycerols contains mainly unsaturated fatty acids with a large proportion of highly unsaturated fatty acids. The relative abundance of different 1,2-diacyl-*sn*-glycerol units in diacylglycerols and triacylglycerols is similar except for highly unsaturated units. This suggests a random utilization of 1,2-diacyl-*sn*-glycerols with 1-3 double bonds for triacylglycerol biosynthesis. The highly unsaturated diacylglycerols probably originate from phospholipids. From the positional distribution of fatty acids in total triacylglycerols the proportions of different triacylglycerol fractions were predicted from the assumption that each fatty acid in any position is combined with fatty acids in proportion to their relative amounts in the other positions. The observed distribution agreed well with the predicted one.

**5283 EFFECT OF DIFFERENT EXTRACTS OF KUTAKI *(PICRORHIZA KURROA)* ON EXPERIMENTALLY INDUCED ABNORMALITIES.** *(E.)* Pandey, V. N. (Coll. Med. Sci., Banaras Hindu U., India) and G. N. Chaturvedi. *Indian J Med Res* 57(3):503-512, 1969.

Experiments were carried out on 85 rats to determine the effect of different extracts of the drug kutaki *(Picrorhiza kurroa)* on functional liver damage caused by carbon tetrachloride (0.07 ml/100 g body weight). Gross pathological investigations of the liver, SGOT and SGPT estimations, body weight and liver glycogen values showed the extracts of kutaki, such as alcoholic, chloroform, petroleum ether, and decoction groups had a protective action against the effects of $CCl_4$. Whole liver tissue weight increased in all these groups while it decreased with $CCl_4$ alone and remained stable in controls. Liver glycogen was only minimally reduced or increased with these groups as compared with a marked decrease with $CCl_4$ alone. Transaminase levels returned toward normal values in the treated groups as compared to prolonged elevation with $CCl_4$ alone. The benzene extract of the test drug was not effective.

**5284 THE EFFECT OF SPINAL CORD SECTION ON RAT LIVER TRYPTOPHAN PYRROLASE ACTIVITY.** *(E.)* Uaptzavova, K. I. (Bulgarian Acad. Sci., Sofia), M. S. Davidov, D. V. Markov, P. S. Popov and G. P. Galabov. *Life Sci* 8(15):905-909, 1969.

The spinal cord of adult male albino rats was cut at the level of $C_7$ and a 2- to 3-fold increase in liver tryptophan pyrrolase activity followed after 24 hr (26.89 ± 2.86 vs 55.71 ± 14.09). The same operation carried out at the level of $L_3$ did not produce any changes. An adrenalectomy performed 5 days before the main operation did not abolish the degree of increase in enzyme activity. The nervous system may influence the induction of liver tryptophan pyrrolase.

**5285 THE EFFECT OF TRIGLYCERIDES ON GLUCONEOGENESIS AND KETOGENESIS IN THE ISOLATED PERFUSED RAT LIVER.** *(E.)* McCraw,

E. F. (U. Indiana Sch. Med., Indianapolis), G. R. Yarnell and J. Ashmore. *Proc Soc Exp Biol Med* 130(4):1093-1097, 1969.

The livers of fasted Wistar rats were perfused with 20 mM lactate in order to measure glucose and ketone body production. Addition of either tributyrin (1.5 mM) or Ediol (5 mM) to the perfusate markedly increased both glucose and ketone body production. Addition of theophylline (10 mM) further increased glucose and ketone body production in the presence of triglyceride. Glucagon (1 μg/ml) resulted in an increase in ketone body production with either triglyceride present, but glucose production was not increased over that observed with glucagon alone. Glucose production, when both glycerol (20 mM) and lactate were present, was greater than that observed with either substrate alone. Intracellular hydrolysis of triglycerides may contribute to glucose formation directly by the effects of fatty acids and their metabolites on glucose formation from lactate or pyruvate.

5286 **A COMPARATIVE STUDY OF BILE ACID METABOLISM IN THE RAT, MOUSE, HAMSTER, AND GERBIL.** *(E.)* Beher, W. T. (Henry Ford Hosp., Detroit, Mich.), A. M. Filus, B. Rao and M. E. Beher. *Proc Soc Exp Biol Med* 130(4):1067-1074, 1969.

Female albino Webster rats, female albino Sprague-Dawley rats, female Golden hamsters and female Mongolian gerbils were used to study the qualitative and quantitative aspects of bile acid metabolism, the applicability of the methods of Strand *(J Lipid Res* 4:305, 1963*)* and of Linstedt and Norman *(Acta Physiol Scand* 38:121. 1956*)* to the determination of bile acid synthesis rates, the possible existence of a correlation between the rate of conversion of tissue sterols to bile acids and the ease of accumulation of tissue sterols in the various animals. Bile acid elimination was mainly via fecal excretion. Little or no side-chain oxidation took place in any species. A study of bile acid distribution in the rat showed that 80-90% was present in the small intestine and gallbladder. The cecum also contained considerable quantities of bile acids. The chief pool bile acid in each was cholic acid. Chenodeoxycholic acid was present in significant amounts in rat and hamster, and in trace amounts in mouse and gerbil bile. Cholic acid half-lives (days) were: rat, 3.5; mouse, 5.0; gerbil, 2.3 and hamster, 1.0. Chenodeoxycholic half-lives were (days): rat, 2.0; mouse, 2.5; gerbil, 1.3 and hamster, 1.8. The rat had the largest acid bile pool (27.2 mg); the mouse (5.6 mg) and gerbil (7.12) intermediate amounts; and the hamster the smallest pool (2.3 mg). Positive correlations between bile acid synthesis rates and the rate of accumulation of tissue cholesterol after feeding cholesterol supplemented diets were noted but further studies are necessary to define the relative importance of this factor in maintaining cholesterol homeostasis in the various rodents.

5287 **RE-EVALUATION OF THE INFLUENCE OF SEX, AGE, PREGNANCY AND PHENOBARBITAL ON THE ACTIVITY OF UDP-GLUCURONYL TRANSFERASE IN RAT LIVER.** *(E.)* Halac, E. Jr. (New York U. Sch. Med., New York) and C. Sicignano. *J Lab Clin Med* 73(4):677-685, 1969.

The activity of UDP-glucuronyl transferase was measured during postnatal development, in adult male and female Fisher rats, and in pregnant animals, by an assay method for this enzyme, which yields *in vitro* conjugation rates several times greater than those previously reported. The effect of phenobarbital administration in adult and pregnant rats was also studied. The acceptor substrates used were bilirubin and p-nitrophenol. No differences in conjugation rates were found that could be attributed to sex. Pregnancy decreased enzyme activity, but this decrease did not seem to be due to the presence of an inhibitor. The injection of phenobarbital increased the activity in every case, with the exception of the p-nitrophenol conjugating capacity of newborns. Deleterious side effects from the injection of phenobarbital during pregnancy were observed.

5288 **EFFECTS OF THYROXINE AND CORTISOL ON LIVER THREONINE DEHYDRATASE AND TRYPTOPHAN PYRROLASE IN RATS FED A HIGH PROTEIN DIET.** *(E.)* Ku, Y. (Dept. Biochem., U. Wisconsin, Madison), Q. R. Rogers and A. E. Harper. *Proc Soc Exp Biol Med* 130(2):556-563, 1969.

The effects of cortisol and thyroxine (400 μg/rat/day for 4 days i.p.) on the activities of tryptophan pyrrolase and threonine dehydratase were measured in tissues from male, Sprague-Dawley or Holtzman, rats on a high protein diet. Both cortisol treatment and high protein intake produced elevated activities of the enzymes in intact, hypophysectomized, and thyroidectomized rats. The combined effect of cortisol treatment and high protein intake was as great or greater than the sum of the 2 treatments individually. Thyroidectomy resulted in a two- to threefold increase in threonine dehydratase activity, but did not affect the activity of tryptophan pyrrolase. Thyroxine injections depressed theonine dehydratase activity in intact, hypophysectomized, and thyroidectomized rats. Thyroxine also depressed the activity of threonine dehydratase in rats fed a high protein diet or injected with cortisol. Tryptophan pyrrolase activity was not altered in intact rats treated with thyroxine but was depressed in hypophysectomized rats fed control or high protein diets.

5289 **LIVER PHOSPHORYLASE AND ITS REGULATING ENZYMES DURING ONTOGENESIS OF THE CHICK EMBRYO.** *(E.)* Goris, J. (Fac. Med. U. Louvain, Belgium) and W. Merlevede. *Arch Int Physiol* 77(1):46-56, 1969.

Chick livers in different stages of incubation from fetal day 10 through day 21 were measured for total phosphorylase, phosphorylase kinase, and phosphorylase phosphatase (i.e., after full activation). Total phosphorylase and dephosphophosphorylase kinase activity increased uniformly throughout embryonic life, while total phosphorylase phosphatase activity showed no marked change until day 16. After a decline on days 17-19, phosphatase activity stayed at the same low level until hatching.

5290 **HEPATIC ADENOMA BIOCHEMICAL AND ELECTRON MICROSCOPIC STUDY.** *(E.)* Garancis, J. C. (Marquette Sch. Med., Milwaukee, Wisc.), T. Tang, R. Panaves and I. Jurevics. *Cancer* 24(3):560-568, 1969.

Five cases of benign tumors of the liver designated as hepatic adenomas were examined by light microscopy and tissues from

2 cases were studied by electron and biochemical analyses. Grossly these tumors were characterized by the central fibrous tissue core, with peripheral extensions producing nodulation. Light and electron microscopy showed that they were composed of normal-appearing hepatic cells and bile ducts, lacking only the organization into hepatic lobules. There was proliferation of bile ducts in the centers of the tumor nodules. Most striking was the excessive accumulation of cytoplasmic glycogen in some. Biochemical analysis demonstrated normal values of the enzymes which are deficient in glycogen storage diseases. In addition, the activity of those enzymes decreased in experimental hepatomas and was within normal limits in the present material, thus indicating the benign nature of these lesions. The differences between hepatic adenoma, regenerative hyperplasia, and hamartoma are cited.

### 5291 THE EFFECTS OF ETHANOL INGESTION AND CHOLINE DEFICIENCY ON HEPATIC LECITHIN BIOSYNTHESIS IN THE RAT.

*(E.)* Fallon, H. J. (U. North Carolina Sch. Med., Chapel Hill), P. M. Gertman and E. L. Kemp. *Biochim Biophys Acta* 187(1):94-104, 1969.

The results of these studies which compare the effects of chronic ethanol ingestion and choline deficiency in the male Sprague-Dawley rat (153) on hepatic phospholipid content and the biosynthesis of lecithin by liver homogenates, indicate that the sequential methylation pathway of lecithin biosynthesis is sensitive to the availability of exogenous choline and that the changes in phospholipid metabolism in rats given ethanol chronically are reversed by dietary choline supplementation. Chronic ethanol ingestion (20% ethanol in drinking water for 1 month to 1 yr) resulted in a 10-15% increase in hepatic total phospholipid content. An increased content of phospholipid in relation to protein was noted in the isolated microsomal fraction. An increase in both lecithin and phosphatidyl ethanolamine occurred. Triglyceride content was unchanged. An increase in lecithin synthesis by the sequential methylation pathway was noted in homogenates and microsomal fractions prepared from ethanol-treated rats. No changes in the cytidine diphosphate choline pathway of lecithin synthesis or in triglyceride synthesis were observed. Choline deficiency resulted in a similar increased capacity for lecithin synthesis by sequential methylation without change in the cytidine diphosphate choline pathway. However, hepatic content of total phospholipid and lecithin fell and triglyceride increased in the choline-deficient rats. Triglyceride synthesis was increased. Supplementation of the diet with 2% choline completely prevented changes in lecithin biosynthesis in the rats given ethanol and partially reversed the increase in phospholipid content.

### 5292 STUDIES ON HUMAN BILE. II. INFLUENCE OF TWO DIFFERENT FATS ON THE COMPOSITION OF HUMAN BILE.

*(e.)* Dam, H. (U. Hosp., Copenhagen, Denmark), I. Kruse, M. K. Jensen and H. E. Kallehauge. *Scand J Clin Lab Invest* 19(4):367-378, 1967.

Healthy volunteer subjects (2 male, 8 female; aged 20 to 31 yr) were given diets in which the main fat component was either butter fat (low in linoleic acid) or the fat of a dietetic margarine containing almost 40% linoleic acid. All the subjects received the butter diet for 3 weeks, and then, 8 subjects received the margarine diet for 1 or 2 consecutive periods of 3 weeks, and the other 2 continued on the butter diet for 2 additional periods of 3 weeks each. Before the experiment and after each period, duodenal bile was collected (after cholecystokinin injection) and analyzed for dry matter, pH, cholesterol, lipid-soluble phosphorus, bile acids, the individual phospholipids and the fatty acid pattern of bile lecithin. The bile produced under the influence of the butter diet consisently contained about 20% of linoleic acid in the total fatty acids of the lecithin, and under the margarine diet about 30%. The ratios between total bile acids and cholesterol and between lipid-soluble phosphorus and cholesterol did not show any definite change in a direction favoring the solubility of cholesterol by substituting margarine for butter.

### 5293 THE BILIARY FUNCTION DURING EXPERIENCES OF PARTIAL EXTRAHEPATIC CHOLESTASIS.

*(Fr.)* Besançon, F. (Bichat Hosp., Paris, France), C. Rozé, M. Souchard, P. Barbier and C. Debray. *Rev Intern Hepat* 17(6):537-553, 1967.

A partial extrahepatic cholestasis was performed in male Wistar rats by reducing the bile flow to 50% by means of a catheter. Bilirubin increased 152% after 1 hr, 235% after 2 hr, and 330% after 3 hr. The biliary concentration of cholesterol and calcium was not modified. The concentration of biliary salts, after total biliary derivation, in free secretion, and during partial cholestasis was not modified; injection of cholic acid increased the initial value by 174%. After administration of 50 mg Adipiodone i.v., the biliary excretion was retarded and decreased in the controls, and less in the animals with cholestasis. Adipiodone appeared in the bile 8 min after the injection in the controls, and after 12 min in the animals with cholestasis. Two hr after injecting 5 mg Terrafungine the biliary concentration was 13 μg in the controls and 5 μg in the animals with cholestasis.

### 5294 THE ACTIVITY OF N-ACETYL-D-MANNOSAMINE KINASE IN THE LIVER OF RATS WITH SOME PATHOLOGICAL CONDITIONS.

*(Rus.)* Uzbekov, M. G. (Inst. Biol. Med. Chem., Acad. Med. Sci. USSR, Moscow). *Biokhimiia* 33(1):102-104, 1968.

The activity of N-acetyl-D-mannosamine kinase, which catalyzes the first step in the synthesis of sialic acid, was reduced by 34% and 48%, resp. in rats given repeated doses of carbon tetrachloride or in those with experimental thyrotoxicosis. The activity of this enzyme remained unchanged in rats given a single dose of carbon tetrachloride and in those with experimental hypothyroidism. In rats with thyrotoxicosis the pH optimum of this kinase was lower, the enzyme was somewhat less thermostable, and the $K_m$ values for the kinase and for ATP were higher than in normal rats. Addition of $10^{-7}$-$10^{-5}$ M thyroxin to incubation mixtures had no effect on enzyme activity in normal rat liver homogenate, suggesting that the low activity of the kinase in rats with thyrotoxicosis is not due to excess thyroxin in their bodies. This reduction in activity may be due to changes in the physicochemical properties of the enzyme in thyrotoxicosis.

### 5295 DECONJUGATION OF BILIRUBIN GLUCURONIDE BY THE LIVER.

*(E.)* Okolicsanyi, L. (Ctr. Electron Microscopy, Lausanne, Switzerland), P. Magnenat and J. Frei. *Lancet* 1(7553):1173-1174, 1968.

Unconjugated bilirubin (2 mg/kg) was given i.v. to 10 Wistar and 6 Gunn rats. Blood and bile samples were analyzed for total and conjugated bilirubin using a modification of Michaelsson's method (*Scand J Clin Lab Invest* 13:1, 1961). The difference between the total and the conjugated bilirubin is the unconjugated part. In the Wistar rats about 80% was eliminated by the liver as conjugated and 20% as unconjugated bilirubin. Gunn rats, which are congenitally deficient for glucuronyl transferase, did not eliminate the injected bilirubin. The plasma-bilirubin concentration remained high during the entire observation period. Unconjugated bilirubin apparently cannot diffuse passively from the plasma to the bile, if it could, the Gunn rats would have eliminated unconjugated bilirubin. Conjugation seems to be necessary for the excretion of unconjugated bilirubin, and the liver probably first conjugates the pigment and then hydrolyses a fraction of it. The second experiment (which seems to confirm the hypothesis) involved 6 Wistar and 6 Gunn rats injected i.v. with bile obtained from normal rats to which a high dose of unconjugated bilirubin (20 mg/kg) had been given. (The bile contained about 20% unconjugated and 80% conjugated bilirubin). The dose corresponded to 2 mg/kg of bilirubin glucuronide. The biliary excretion of the conjugated bilirubin was similar in the 2 groups of animals. Excretion began 1 min after injection, reached a peak at the 10 min, and then decreased rapidly. Again the biliary pigment was made up of 20% unconjugated and 80% conjugated bilirubin. The unconjugated bilirubin that appears in the bile of Gunn rats cannot be the fraction injected i.v. with the bile since the first experiment showed that Gunn rats do not eliminate unconjugated bilirubin. Therefore the unconjugated pigment excreted in the bile must have entered the liver as conjugated and must have been deconjugated by passing through. The presence of a high concentration of $\beta$-glucuronidase in the liver is well known. This enzyme may contribute to the intrahepatic hydrolysis of bilirubin glucuronide.

5296 **EFFECTS OF INHIBITORS OF PROTEOLYTIC ENZYMES ON THE REGENERATING HYPERPLASIA OF THE LIVER IN THE RAT.** *(Fr.)* Chambon, Y. (Fac. Med., Rennes, France), F. Picard and M. Lefoulon-Gourvès. *C R Soc Biol* 161(11):2259-2262, 1968.

The left and middle lobes of the liver of female Wistar rats were excised using the technique of Higgins and Anderson. The weight after hepatectomy and 7 days later at autopsy was recorded to obtain the rate of regeneration. This rate, in the controls, was 59%; in rats injected i.p. with 1.25 or 2.5 ml/day sodium chloride for 7 days, the rates were 71.1% and 74.1% resp., in rats given 250,000 or 500,000 U/day of Kunitz's factor (a polypeptide of pancreatic origin, an inhibitor of protease), the regeneration rates were 72.4% and 60.0% resp.; in rats given 1250 or 2500 antikallikrein U of Frey's inhibitor (parotid polypeptide) they were 76.0% and 65.0% resp.; in rats given 62.5 or 125 mg of $\epsilon$-amino caproic acid, the regeneration rates were 62.4% and 86.1% resp.

5297 **ACTION OF SOME ANALEPTICS ON CHOLERESIS IN THE RAT.** *(Fr.)* Debray, C. (Bichat Hosp., Paris, France), C. Vaille, J. De La Tour, C. Roze and M. Souchard. *Path Biol* 16(5-6):297-303, 1968.

In the normal rat, anesthetized with ethyl urethan, and bearing a pancreatic and biliary fistula, bile secretion decreased slowly. Lobeline (2 mg/kg i.v.) did not affect secretion; caffeine (0.05 g/kg i.v.) caused a statistically significant decrease. Heptaminol (0.05 g/rat i.v.) caused a slight increase. Prethcamide (0.015 g/rat) caused an increase after 10 min and for 3 hr. No relation was found between the effect on bile secretion and the effect on respiration: lobeline and prethcamide had only a transitory effect on respiration; caffeine and heptaminol had stronger and more sustained effects on the frequency and amplitude of respiration. The action on choleresis may be an undesirable side effect in some patients, but in others it could be considered an indication for the drug.

5298 **STUDIES ON THE ACTIVITY OF SO-CALLED EXCRETORY ENZYMES IN EXPERIMENTAL OBSTRUCTIVE JAUNDICE IN RABBITS. I. GAMMA-GLUTAMYL TRANSPEPTIDASE ACTIVITY IN LIVER TISSUE.** *(E.)* Lukasik, S. (3rd Clin. Intern. Dis., Med. Acad., Wroclaw, Poland), B. Osiński and W. Lukasikowa. *Acta Med Pol* 9(1):79-85, 1968.

In 14 rabbits obstructive jaundice was produced by ligating the common bile duct and the activity of gamma-glutamyl transpeptidase (GGTP) in the liver tissue determined. The animals were sacrificed 1, 2, 3, 4, 6, 9, 14, 18, 19, 26, 28, and 30 days after operation. In the rabbit killed on the 30th day, the ligature was removed on the 7th day in order that any regression in the changes could be studied. After sacrifice, the liver and bile ducts were inspected *in situ* and cross sections and samples of tissue were then taken for assays of GGTP activity and histological study. As soon as 1 day after the ligature was applied, the gallbladder and bile ducts were distended and bile oozed from the cross section of the liver. After 9-14 days the gallbladder was enlarged and the bile duct increased to the thickness of a pencil. This state continued to the end of the observation period. Bile was thicker and after 9-14 days nearly black becoming green after 3-4 weeks. The intensity of these reactions varied with the individual. The liver was enlarged but soft after 3-4 days, but after 2 weeks it became firm and in some instances diminished in size. The gross signs of cirrhosis were present after 3-4 weeks. The bile ducts were dilated 3-4 days after ligation and fatty degeneration was observed locally. In the second week most of the bile ducts were dilated with thick walls and fatty degeneration and proliferation of connective tissue were more marked. In the third week and especially in the fourth, this took the form of biliary cirrhosis of the liver with atrophy of large areas of the parenchyma. Small amounts of GGTP can be seen as brown grains in the cytoplasm of some liver cells of healthy rabbits, mainly around the nucleus and in the periphery of the lobules. In the first week the number of grains increased somewhat and grains appeared around the bile duct while in the second week the reaction for GGTP activity was strongly positive in the peripheral part of most of the lobules, around cell nuclei, and to a lesser degree throughout the rest of the cytoplasm. The intensity of the reaction decreased in the fourth week. The amount of active liver parenchyma and not the duration of the mechanical saturation of the liver by bile is decisive for the level of tissue activity of GGTP.

5299 **THE BEHAVIOR OF SOME ENZYMES IN THE LIVER IN THE COURSE OF SUBACUTE EXPERIMENTAL LEAD POISONING.** *(E.)* Zegarska, Z.

4 mg/kg/day for 10 days. Ten rabbits served as controls. Liver material was taken before the experiment, at the peak of the poisoning (i.e. after 10-14 days), and after symptoms had subsided (i.e., after 10-14 more days). Specimens were taken from a different lobe of the liver each time. The same procedures were applied to the controls. The specimens obtained before poisoning showed the same pattern as healthy rabbits. Reactions for lipids and glycogen showed only slight individual variations. At the stage of acute poisoning marked changes were seen. No changes in the structure of the hepatic lobules or signs of necrosis of the liver cells were observed, but some of the liver cells, especially those near the central vein, were enlarged. The nuclei were enlarged and contained coarsely granular nuclear inclusions. In all the poisoned animals histochemical changes had the same character but varied in intensity. Significantly decreased intensity of the reaction for glycogen was observed, especially in the central part of the lobules. The reduction in glycogen was proportional to the degree of the poisoning. Neutral lipids were slightly increased with a resulting picture of fatty infiltration with fine droplets. The activities of most of the hydrolases studied were decreased. Alkaline phosphatase activity in the bile ducts and hepatocytes in the peripheral parts of the lobules was distinctly decreased, but only minimally in the central parts, where some lobules even showed increased activity. ATP also gave weakly positive reactions especially in the central liver cells and bile canals near the central vein. Of the hydrolase enzymes, sulfatase activity showed the most decrease. Acid phosphatase was the only hydrolase with increased activity which was most pronounced in Kupffer cells. Lactic dehydrogenase gave weaker reactions. Glucose-6-phosphate activity was slightly, and delta-5,3-beta-hydroxysteride markedly increased, especially in the peripheral part of the hepatic lobules. In the last (subsiding) stage nearly all the histochemical reactions gradually returned to normal. Only sulfatase and delta-5,3-beta-hydroxysteride were lower than during the poisoning. Control animals showed no significant changes during the experiment.

5300 **INHIBITION OF RAT LIVER GLUTATHIONE REDUCTASE BY THE REDUCED B-CHAIN OF INSULIN.** *(E.)* Jervell, J. (Queen's U. Belfast, Northern Ireland). *Scand J Clin Lab Invest* 20(2):244-248, 1967.

The reaction between fasted rat liver glutathione reductase and isolated reduced phenylalanine (B) chain of insulin is progressive with time until the inhibition reaches completion; and in spite of the reactivation with GSH (reduced glutathione) or cysteine, the inhibition should enzymatically be classified as irreversible. The inhibition follows the characteristics of a bimolecular reaction. The reaction between enzyme and inhibitor is dependent upon the presence of small amounts of NADPH (greater than $2.2 \times 10^{-7}$ M). The inhibition by B-chain may be due to a reaction between enzyme-SH and B-chain; the presence of NADPH would insure that the enzyme is reduced to react with the chain. GSH or cysteine completely and rapidly reactivate the enzyme; GSH being the more active. The reaction between B-chain and enzyme must be relatively specific; since insulin, reduced or sulfonated A-chain of insulin have no effect on the enzyme. The sulfonated B-chain has a slight inhibitory effect. No inhibition is found on yeast glutathione reductase. The inhibition of glutathione reductase by the B-chain may be of importance in regulating the amount of GSH available for the glutathione-insulin transhydrogenase reaction, thus providing a regulatory feed-back cycle.

5301 **CONVERSION OF ACETATE-2-$^{14}$C TO $^{14}$CO$_2$ AND $^{14}$C-FATTY ACIDS IN THE PARTIALLY HEPATECTOMIZED RAT.** *(E.)* Neville, E. D. (Ames Res. Ctr., Moffett Field, Calif.), K. S. Talarico and D. D. Feller. *Proc Soc Exp Biol Med* 130(2):643 & 651, 1969.

5302 **EFFECT OF INHIBITORS OF CHOLESTEROL SYNTHESIS ON RAT LIVER UBIQUINONE.** *(E.)* Phillips, W. E. J. (Dept. Natl. Hlth. Welfare, Ottawa, Canada) and R. L. Brien. *J Atheroscler Res* 9(2):113-119, 1969.

5303 **THE INFLUENCE OF PHENOBARBITAL ON THE GLYCOGEN CONCENTRATION OF RAT LIVER.** *(E.)* Japundžić, I. (Med. Fac., Belgrade, Yugoslavia), M. Japundžić, B. Knežević and J. Mimić-Oka. *Experientia* 25(5):478-479, 1969.

5304 **BILIRUBIN METABOLISM.** *(Rev.)(E.)* Billing, B. H. and M. Black. *Gut* 10(4):250-254, 1969.

5305 **THE EFFECT OF HORMONES ON HEPATIC CHOLESTEROL ESTER SYNTHESIS *IN VITRO*.** *(E.)* Schweppe, J. S. (Chicago Wesley Mem. Hosp., Ill.) and R. A. Jungmann. *Proc Soc Exp Biol Med* 131(3):868-870, 1969.

5306 **INHIBITORY EFFECTS OF ETHIONINE AND PUROMYCIN ON THE INCREASES IN HEPATIC ARGINASE AND UREA EXCRETION IN HYPERTHYROID RATS.** *(It.)* Grillo, M. A. (Inst. Biol. Chem., U. Turin, Italy) and M. Coghe. *Boll Soc Ital Biol Sper* 44(19): 1634-1636, 1968.

5307 **SYNTHESIS OF RNA IN RAT LIVER MITOCHONDRIA. I. NATURE OF THE RNA SYNTHESIZED IN THE PRESENCE OF MITOCHONDRIA WITH ALTERED MEMBRANE PERMEABILITY.** *(It.)* Gadaleta, M. N. (Inst. Biol. Chem., U. Bari, Italy), C. Saccone and E. Quagliariello. *Boll Soc Ital Biol Sper* 44(19):1570-1573 1968.

5308 **ALKYLATION OF RAT LIVER NUCLEIC ACIDS NOT RELATED TO CARCINOGENESIS BY N-NITROSAMINES.** *(E.)* Lijinsky, W. (U. Nebraska, Coll. Med., Omaha) and A. E. Ross. *J Nat Cancer Inst* 42(6): 1095-1100, 1969.

5309 **REVERSIBILITY OF THE THYROXINE EFFECT ON RAT LIVER GLUTAMIC-PYRUVIC TRANSAMINASE AND SERINE DEHYDRASE BY DIETARY SUPPLEMENTATION OF VITAMIN B$_6$.** *(E.)* Szepesi, B. (Sch. Vet. Med., U. California, Davis) and R. A. Freedland. *Life Sci* 8(8):353-355, 1969.

5310 **THE INHIBITION OF RAT LIVER GLUCOKINASE BY PALMITOYL-CoA.** *(E.)* Dawson, C.

Sch. Biol. Sci., U. East Anglia, Norwich, England) and C. N. Iales. *Biochim Biophys Acta* 176(3):657-659, 1969.

311 **AFLATOXIN EFFECTS IN POULTRY.** *(E.)* Kratzer, F. H. (Western Regional Res. Lab., lbany, Calif.), D. Bandy, M. Wiley and A. N. Booth. *Proc oc Exp Biol Med* 131(4):1281-1284, 1969.

312 **PARTIAL HEPATECTOMY IN RATS FED DICHLORODIPHENYLTRICHLOROETHANE DDT).** *(E.)* Ortega, P. (Mount Zion Hosp., San Francisco, alif.). *Amer J Path* 56(2):229-237, 1969.

313 **DISSOCIATION OF SERUM BILIRUBIN AND ALKALINE PHOSPHATASE IN INFECTIOUS IONONUCLEOSIS.** *(E.)* Shuster, F. (U.S. Kimbrough rmy Hosp., Fort George G. Meade, Md.) and A. J. Ognibene. *AMA* 209(2):267-268, 1969.

314 **EXPERIMENTAL CARCINOGENESIS IN THE LIVER.** *(Nor.)* Fritzon, P. (Norsk Hydros Inst. ancer Res., Oslo, Norway). *T Norske Laegeforen* 88(12b): 239-1246, 1968.

315 **PHENYLBUTAZONE AND ISONIAZID METABOLISM IN PATIENTS WITH LIVER ISEASE IN RELATION TO PREVIOUS DRUG THERAPY.** *E.)* Levi, A. J. (Royal Free Hosp., London, England), S. herlock and D. Walker. *Lancet* 1(7555):1275-1279, 1968.

316 **THE ORIGIN OF UNCONJUGATED BILIRUBIN IN THE LIVER IN OBSTRUCTIVE AUNDICE.** *(E.)* Billing, B. H. (Royal Free Hosp., ondon, England), S. Raia and R. Armas-Merino. Pp. 49-53 n *Ikterus.* International Symposium 27-29 October 1967. eck, E., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

317 **INDUCEMENT OF 4-METHYLUMBELLIFERONE-GLUCURONYL-TRANSFERASE IN THE RAT IVER.** *(Ger.)* Keck, C. (Freiburg, Germany) and K. Beck. p. 28-31 in *Ikterus.* International Symposium 27-29 October 967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 92 pp.

318 **ANALYSES OF LIVER METABOLISM IN EXPERIMENTALLY DISTURBED LYMPH CIRULATION.** *(Ger.)* Gerlach, U. (Münster, Germany), H. hemann and T. Ö. Zoltan. Pp. 58-63 in *Ikterus.* International ymposium 27-29 October 1967. Beck, K., Ed. New York, . K. Schattauer Verlag, 1968. 492 pp.

319 **USE OF UDPG–DEHYDROGENASE IN THE LIVER OF INSULIN DEFICIENCY–DIABETIC ATS.** *(Ger.)* Müller-Oerlinghausen, B. (Göttingen, Germany). p. 31-33 in *Ikterus.* International Symposium 27-29 ctober 1967. Beck, E., Ed. New York, F. K. Schattauer erlag, 1968. 492 pp.

320 **COMPLEX FORMATION OF BILIRUBIN DIGLUCURONIDES WITH PHOSPHOLIPIDS N THE DEVELOPMENT OF "ETHER EXTRACTABLE ILIRUBIN".** *(Ger.)* Talafant, E. (Brno, Czechoslovakia). Pp. 84-85 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5321 **INITIAL DYE ELIMINATION AND OXIDATIVE LIVER CELL METABOLISM.** *(Ger.)* Müller, W. A. (Stuttgart, Germany). Pp. 425-425 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5322 **LIPID METABOLISM AND JAUNDICE.** *(Ger.)* Eggstein, M. (Tübingen, Germany). Pp. 445-451 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5323 **LIVER FATTY ACID PATTERN IN HEPATITIS.** *(Ger.)* Berg, G. (Erlangen, Germany). Pp. 452-453 in *Ikterus.* International Symposium 27-29 October 1967. Beck, E., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5324 **BIOSYNTHESIS OF CHOLESTERIN, TRIGLYCERIDES AND PHOSPHOLIPIDS IN THE RAT LIVER THROUGH EXPERIMENTAL CHOLESTASIS.** *(Ger.)* Kattermann, R. (Goettingen, Germany). Pp. 454-457 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5325 **ERYTHROCYTE IRON METABOLISM IN LIVER CIRRHOSIS.** *(Ger.)* Strohmeyer, G. (Marburg, Germany) and H. Kuni. Pp. 459-467 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5326 **PYRUVATE METABOLISM IN MAMMALIAN LIVER.** *(E.)* Parli, C. J. (Agric. Exp. Sta., Oklahoma State U., Stillwater), L. C. Burns, S. K. Meghal, K. Kinneberg, R. M. O'Neal and R. E. Koeppe. *Amer J Physiol* 216(6):1525-1533, 1969.

5327 **HEPATIC REGENERATION IN ECHINOCOCCOSIS: AN ARGUMENT FOR LOBECTOMY. [CASE REPORT]** *(E.)* Bakaloudis, P. (Evangelismos Med. Ctr., Athens, Greece). *Ann Surg* 170(2):256-262, 1969.

5328 **CHARACTERIZATION OF LIPOPROTEIN PARTICLES ISOLATED FROM THE GOLGI APPARATUS OF RAT LIVER.** *(E.)* Mahley, R. W. (Vanderbilt U. Sch. Med., Nashville, Tenn.), R. L. Hamilton and V. S. Lequire. *J Lipid Res* 10(4):433-439, 1969.

5329 **CLINICAL STUDIES ON THE EFFECT OF LAEVULOSE ON THE RATE OF METABOLISM OF ETHYL ALCOHOL.** *(E.)* Patel, A. R. (Western Infirm., Glasgow, Scotland), A. M. Paton, D. H. Lawson and A. L. Linton. *Scot Med J* 14(8):268-271, 1969.

5330 **HEMODYNAMIC EFFECTS OF PARTIAL HEPATECTOMY IN DOGS.** *(E.)* Aronsen, K. F. (Allmänna Hosp., Malmö, Sweden), H. Grundsell, B. W.

Johansson, E. G. Ohlsson and B. Pihl. *Acta Chir Scand* 135(4): 320-324, 1969.

5331 AUXILIARY PARTIAL LIVER TRANSPLANTATION IN THE DOG. *(E.)* Corry, R. J. (Massachusetts Gen. Hosp., Boston), F. Chavéz-Peón, T. Miyakuni and R. A. Malt. *Arch Surg (Chicago)* 98(6):799-802, 1969.

5332 GLYCOGEN STORAGE IN A HEPATOMA: DEPHOSPHOPHOSPHORYLASE KINASE DEFECT. *(E.)* Christiansen, R. O. (Stanford U. Sch. Med., Palo Alto, Calif.), L. A. Page and E. Greenberg. *Pediatrics* 42(4):694-696, 1968.

5333 OXIDATIVE DEAMINATION OF AMINOACETONE IN THE LIVERS OF RATS. *(It.)* Pisani, W. (Inst. Clin. Med., U. Turin, Italy) and A. Bonzanino. *Boll Soc Ital Biol Sper* 44(14):1170-1172, 1968.

5334 EFFECT OF ACTINOMYCIN D AND PUROMYCIN ON THE CONVERSION OF CHOLESTEROL INTO BILE ACIDS IN BILE FISTULA RATS. *(E.)* Einarsson, K. (Karolinska Inst., Stockholm, Sweden) and G. Johansson. *FEBS Letters* 1(4):219-222, 1968.

5335 METABOLISM OF SEROTONIN BY THE ISOLATED PERFUSED RAT LIVER–EFFECT OF GLUCURONYL TRANSFERASE DEFICIENCY OR MONAMINE OXIDASE INHIBITION. *(E.)* Tyce, G. M. (Mayo Clin., Rochester, Minn.), E. V. Flock and C. A. Owen Jr. *Biochem Pharmacol* 17(8):1543-1552, 1968.

5336 SUBCELLULAR DISTRIBUTION OF MONOAMINE OXIDASE ACTIVITY IN RAT LIVER AND VAS DEFERENS. *(E.)* Jarrot, B. (Dept. Pharmacol., U. Cambridge, England) and L. L. Iversen. *Biochem Pharmacol* 17(8):1619-1625, 1968.

5337 PHYSIOLOGICAL ROLE OF MALIC ENZYME IN LIVER. *(E.)* Wada, F. (Osaka U. Med. Sch., Japan), E. Maruyama, K. Shibayama and Y. Sakamoto. *J Biochem (Tokyo)* 63(6):805-807, 1968.

5338 THE EFFECT OF DIET ON THE HEPATIC GLUCOSE OUTPUT IN THE AFRICAN. *(Fr.)* Watrin, J. L. (Med. Div., Sabena Airlines, Kinshasa, Congo). *Ann Soc Belg Med Trop* 48(6):583-596, 1968.

5339 REPRESSIVE EFFECT OF CORTISONE ADMINISTRATION ON PROTEIN SYNTHESIS OF MOUSE LIVER *IN VITRO*. *(E.)* Koike, K. (Tohoku U. Sch. Med., Sendai, Japan), T. Otaka and S. Okui. *J Biochem (Tokyo)* 63(6):709-715, 1968.

5340 ASPECTS OF GLYCOGEN SYNTHESIS AND DEGRADATION. *(E.)* Anstall, H. B. (U. Texas, Houston). *Amer J Clin Path* 50(1):3-11, 1968.

5341 PARTIAL SYNTHESIS OF STERO-BILE ACIDS RELATED TO LITHOCHOLIC ACID. *(E.)* Morimoto, K. (Hiroshima U., Sch. Med., Japan), Y. Kurat N. Hoshita and K. Okuda. *Hiroshima J Med Sci* 17(1):1-6, 1968.

5342 PROBLEMS IN THE REGULATION OF HEPATIC METABOLISM. IV. THE MECHANISMS OF ACTION OF CERTAIN HORMONES. *(Ger.)* Holldorf, A. W. (Inst. Biochem., U. Freiburg, Germany), E. Förster and H. Falk. *Acta Hepatosplen* 15(6):361-376, 1968.

5343 DIURNAL MITOTIC RHYTHMS IN THE RAT LIVER AFTER PARTIAL HEPATECTOMY. *(Ger.)* Klinge, O. (Path. Inst., U. Würzburg, Germany) and J. Mathyl. *Virchows Arch Zellpath* 2(2):154-162, 1969.

5344 HEPATIC DNA SYNTHESIS AFTER PARTIAL HEPATECTOMY IN RATS TREATED WITH PROTAMIN-ZN-INSULIN UNDER DIFFERENT NUTRITIONA CONDITIONS. *(E.)* Šimek, J. (Fac. Med., Charles U., Hradec Králové, Czechoslovakia), A. Husáková, F. Deml and I. Dvořáčková. *Experientia* 25(8):791-792, 1969.

5345 HETEROTOPIC HOMOTRANSPLANTATION OF THE LIVER IN DOGS: FUNCTIONAL STUDY OF THE GRAFT. *(Fr.)* Marchal, G. (Lab. Exp. Surg., U. Montpellier, France), C. Solassol, M. Balmes, M. Bousquet, H. Michel, J. M. Emberger, G. Olivier and M. T. Pantel. *Epatologia* 13(4):865-876, 1967.

5346 PROVOKED REGENERATION OF THE HETEROTOPIC LIVER-GRAFT IN THE DOG. *(E.)* Van Der Heyde, M. N. (Dept. Surg., U. Leiden, Netherlands) and L. Schalm. *Epatologia* 13(4):903-906, 1967.

5347 SUPPLEMENTARY LIVER TRANSPLANTATIO IN THE PORTAL REGION. *(Fr.)* Mallet-Guy, P. (Fac. Med., U. Lyon, France), J. Michoulier, L. Bernard and J. C. Imbert. *Epatologia* 13(4):849-858, 1967.

5348 MODERATE HYPOTHERMIA DURING INTERRUPTION OF THE PORTAL CIRCLE IN TRANSPLANTATION OF THE LIVER. *(It.)* Esposito, G. (Inst. Semeiotic Surg., U. Naples, Italy), A. Infranzi, M. Abbate and C. Lombari. *Epatologia* 13(4):915-920, 1967.

5349 A COMPARATIVE SENSITIVITY OF THE LIVER EXPLANTS AND TRANSPLANTABLE MICE HEPATOMAS TO SOME CHEMICAL SUBSTANCES. *(Rus.)* Iagorskaia, T. A. (Inst. Exp. Clin. Oncol., Moscow, USSR). *Vopr Onkol* 13(9):72-76, 1967.

5350 THE EFFECTS OF INSULIN AND GLUCAGO ON AMINO ACID METABOLISM OF AN ISOLATED PERFUSED LIVER. *(Ger.)* Gerok, W. (2nd Med. Clin. Polyclin., U. Mainz, Germany) and H. Schimassek. *Verh Deutsch Ges Inn Med* 73(4):267-272, 1967.

5351 **ACTIVITY OF 3′,5′-AMP PHOSPHODIESTERASE IN LIVER AND ADIPOSE TISSUE OF NORMAL AND DIABETIC RATS.** *(E.)* Müller-Oerlinghausen, B. (Inst. Pharmacol., U. Göttingen, Germany), U. Schwabe, A. Hasselblatt and F. H. Schmidt. *Life Sci* 7(12):593-598, 1967.

5352 **EXPERIMENTS OF ESTRADIOL TO ESTROGEN OXIDATION IN LIVER DISEASES.** *(Ger.)* Blum, K. U. (Med. U. Polyclin., Marburg, Germany) and M. Wenzel. *Verh Deutsch Ges Inn Med* 73(4):1107-1109, 1967.

5353 **METABOLISM ANALYSES OF ACID GLYCOSAMINOGLYCANE OF THE LIVER IN HUMAN AND EXPERIMENTAL LIVER CIRRHOSIS.** *(Ger.)* Becker, K. (1st Med. Clin., U. Hamburg, Germany). *Verh Deutsch Ges Inn Med* 73(4):264-267, 1967.

5354 **LIVER ENLARGEMENT DUE TO DRUG EFFECTS.** *(Ger.)* Schlicht, I. (Westend Hosp., Berlin, Germany), W. Koransky, R. Schulte-Hermann and S. Magour. *Verh Deutsch Ges Inn Med* 73(4):251-255, 1967.

5355 **GLYCOPROTEIN SYNTHESIS BY THE PERFUSED LIVERS FROM NORMAL AND TUMOUR-BEARING RATS.** *(E.)* Burston, D. (Westminster Med. Sch., London, England) and M. E. Apsey. *Brit J Cancer* 21(4):801-810, 1967.

5356 **THE CARCINOGENIC ACTION OF 2-AMINODIPHENYLENE OXIDE AND 4-AMINODIPHENYL ON THE BLADDER AND LIVER OF THE C57 X IF MOUSE.** *(E.)* Clayson, D. B. (Sch. Med., Leeds, England), T. A. Lawson and J. A. S. Pringle. *Brit J Cancer* 21(4):755-762, 1967.

5357 **A TECHNIQUE FOR FUNCTIONAL LIVER AUTOTRANSPLANTATION. OBSERVATIONS ON SURVIVAL, FUNCTION, AND REGENERATION OF THE AUTOTRANSPLANT.** *(E.)* Tamvakopoulos, S. K. (Rhode Island Hosp., Providence), H. T. Randall and J. L. Van Lancker. *J Surg Res* 9(8):449-453, 1969.

5358 **HEPATIC PRODUCTION OF AN ALBUMIN-ASSOCIATED INSULIN INHIBITOR.** *(E.)* Voyles, N. (Georgetown U. Sch. Med., Washington, D. C.), J. C. Penhos and L. Recant. *Proc Soc Exp Biol Med* 130(2): 635 & 637, 1969.

See also: 5106,5109,5117,5144,5212,5213,5214,5215,5216,5217,5219,5220,5350,5428

### 5359 THE ROLE OF THE GASTROINTESTINAL TRACT IN PLASMA PROTEIN METABOLISM. STUDIES WITH $^{51}$Cr-ALBUMIN.

*(E.)* Waldmann, T. A. (Natl. Cancer Inst., NIH, Bethesda, Md.), R. D. Wochner and W. Strober. *Amer J Med* 46(2):275-285, 1969.

Quantitate protein loss into the gastrointestinal tract was determined in 230 studies of 180 subjects given human $^{51}$Cr-albumin i.v. Simultaneous studies were performed in 70 subjects using $^{125}$I-albumin to determine the rates of protein synthesis and catabolism. The 50 control subjects excreted from 0.1 to 0.7% of the injected dose of $^{51}$Cr-albumin in the stools during the first 4-day period and cleared the protein from 5.6 to 35.3 ml (mean 16.3 ml/day) of plasma per day. This enteric protein loss accounted for 2-15% (mean 6.4%) of the total catabolism of albumin in these patients, as estimated with $^{125}$I-albumin. Normal $^{51}$Cr-albumin excretion occurred in 38% of the 130 patients with hypoalbuminemia. Each of the patients studied had a normal $^{125}$I-albumin survival and a decreased rate of albumin synthesis. No false negative estimates for gastrointestinal protein loss were obtained with $^{51}$Cr-albumin tests. The remaining patients with hypoalbuminemia excreted excessive quantities of $^{51}$Cr in the stools with up to 35% of the injected $^{51}$Cr dose excreted in the 4-day stool collection, and from 50 to 1800 ml of plasma representing 2-60% of the intravascular pool cleared into the gastrointestinal tract per day. There was a close correlation between the fraction of the plasma pool cleared into the gastrointestinal tract, estimated by $^{51}$Cr-albumin, and the increase over normal in the albumin fractional catabolic rate as estimated with $^{125}$I-albumin. Excessive loss of protein into the gastrointestinal tract was shown to be a major factor in the hypoproteinemia of patients with giant gastric rugae, regional enteritis, Whipple's disease, gluten-induced enteropathy, ulcerative colitis, intestinal lymphangiectasia and allergic gastroenteropathy. Excessive loss was a significant contributing factor to the hypoproteinemia of some patients with acute Shigella infection, chronic pancreatitis, cystic fibrosis of the pancreas, agammaglobulinemia, scleroderma, amyloidosis, lupus erythematosus and the carcinoid syndrome.

### 5360 EFFECT OF CHRONIC NUTRITIONAL IRON DEFICIENCY OF THE SMALL INTESTINAL DISACCHARIDASE ACTIVITIES OF GROWING DOGS.

*(E.)* Hoffbrand, A. V. (Boston City Hosp., Mass.) and S. A. Broitman. *Proc Soc Exp Biol Med* 130(2):595-598, 1969.

Decreased disaccharidase activity associated with chronic iron deficiency was studied in 5 litters (4 weimaraner and 1 beagle) of 4 puppies each. Lactase, sucrase and maltase activities were reduced to approximately 50% of control values in both jejunal mucosal homogenates and brush border preparations. *In vitro* studies failed to show a requirement for free inorganic iron by these enzymes. Folate conjugase activity in the jejunal mucosa was similar in iron-deficient and control puppies. No histologic abnormalities were noted in the mucosa of iron-deficient animals. Iron deficiency may cause a functional impairment in the brush border region of the growing animal before structural changes occur.

### 5361 INFLUENCE OF HYPOXIA-HYPERCAPNIA ON THE INTESTINAL pH *IN SITU* IN THE RAT.

*(Fr.)* Guerrin, F. (Fac. Med. Pharm., Lille, France), J. P. Latreille, K. Mandai and H. Robin. *C R Soc Biol* 161(11): 2207-2209, 1968.

In 55 Wistar rats a total of 70 hypoxia-hypercapnias of the rebreathing type were induced by respiration in a tube 1000 mm x 2 mm adapted to a tracheotomy cannula. In all cases a decrease in the intestinal pH of 0.06-0.6 U pH was produced, within 1-1½ min after rebreathing. When returned to respiration in free air, the pH returned to normal values (7.11 in the jejunum and 7.52 in the ileus). Comparison of the variations in intestinal pH *in situ* with the pH of arterial blood showed that: a) a decrease of intestinal pH corresponded to the serum acidosis; b) an increase of intestinal pH corresponded to the return to initial values of blood pH. The same correlation existed for $PaO_2$ and, in the opposite direction, for $PaCO_2$.

### 5362 INTESTINAL HORMONES AND INSULIN RELEASE: *IN VITRO* STUDIES USING RABBIT PANCREAS.

*(E.)* Turner, D. S. (Guy's Hosp. Med. Sch., London, England). *Horm Metabol Res* 1(4):168-174, 1969.

The rabbit pancreas preparation of Coore and Randle (*Biochem J* 93:66, 1964) was used to study the effect of glucagon, secretin, pancreozymin and an extract of porcine duodeno-jejunal mucosa (DJM) on glucose-induced insulin release *in vitro*. Only glucagon and DJM potentiated glucose-induced insulin release. A previously unidentified intestinal hormone, "incretin," may be contained in DJM. The effects of 1-leucine, 1-arginine and 1-lysine on insulin release were also studied, and only leucine was found to significantly stimulate insulin release. Glucagon, DJM, and pancreozymin were found to potentiate leucine-induced insulin release, while secretin had no effect. D-Mannoheptulose was shown to inhibit insulin secretion by glucagon and DJM in the presence of high glucose levels, but not to inhibit the release of insulin by leucine or its potentiation by glucagon, DJM and pancreozymin.

### 5363 STEROIDS IN GERMFREE AND CONVENTIONAL RATS. 21-DEHYDROXYLATION BY INTESTINAL MICROORGANISMS.

*(E.)* Eriksson, H. (Karolinska Inst., Stockholm, Sweden), J. Å. Gustafsson and J. Sjövall. *Europ J Biochem* 9(4):550-554, 1969.

The metabolism of 3β,21-dihydroxy-5α-pregnan-20-one in incubations with cecal microorganisms in conventional rats was studied. Pregnane-3,20-diols and pregnane-3,20-21-triols were the major products. Relatively more pregnanediols were formed under aerobic than under anaerobic conditions. There was no formation of pregnanediols from 5α-pregnane-3β,20β (and 20α), 21-triol and no epimerization of the 20-hydroxy group or loss of 20α (or 20β)-$^{2}$H in deuterium labeled pregnanetriols. The 3β-hydroxy group underwent partial epimerization during incubation. There seems to be a microbial 21-dehydroxylation of 21-hydroxy-20-oxo steroids which may explain the absence of 21-hydroxylated steroids in feces from conventional rats.

### 5364 METABOLISM OF CEREBROSIDE IN THE INTESTINAL TRACT OF THE RAT. *(E.)*

Nilsson, A. (Div. Physiol. Chem., U. Lund, Sweden). *Biochim Biophys Acta* 187(1):113-121, 1969.

3-$^3$H-Sphingosin- or 9,10-$^3H_2$-palmitoyl-labeled glucosyl-ceramide and 6-$^3$H-galactosyl-labeled galactosyl-ceramide were fed to Sprague-Dawley rats; intact, or with a thoracic duct fistula. Analyses of the thoracic duct lymph, the small intestine, intestinal contents and the feces indicated that the substrates were absorbed and metabolized to a large extent in the small intestine. One-fifth to 42% of the fatty acid portion was recovered in lymph triglycerides and lecithin, and labeled hexose was transported in a water-soluble form by the portal vein. The low recovery of radioactivity in lymph lipids in experiments with 3-$^3$H-sphingosin-labeled glucosyl-ceramide and data from earlier studies showed that 55-60% of the sphingosin portion was absorbed and metabolized to fatty acids in the mucosal cells and the remainder appeared in the feces as intact cerebroside and ceramide. Rat pancreatic juice and human intestinal contents did not hydrolyze glucosyl-ceramide. The analyses of the small intestine and intestinal contents 2-3 hr after feeding the substrates also indicated that the hydrolysis of dietary cerebroside occurs in the mucosal cells after absorption. An active biosynthesis of cerebroside, in which dietary sphingosin bases take part, occurs in the mucosal cells.

### 5365 RABBIT INTESTINAL GLUCOSE-6-PHOSPHATE PHOSPHOHYDROLASE AND INORGANIC PYROPHOSPHATE-GLUCOSE PHOSPHOTRANSFERASE: INHIBITION BY PHLORIZIN. *(E.)*

Lygre, D. G. (U. North Dakota Med. Sch., Grand Falls) and R. C. Nordlie. *Biochim Biophys Acta* 185(2):360-366, 1969.

The inhibition of rabbit intestinal D-glucose-6-phosphate phosphohydrolase (EC 3.1.3.9) by phlorizin and of $PP_i$-glucose phosphotransferase activity also catalyzed by this enzyme was investigated. Studies were carried out with freshly prepared, unsupplemented microsomes and with microsomal suspensions to which various concentrations (0.05-0.30%, w/v) of the cationic detergent cetylhexadecylammonium bromide (cetrimide) had been added before assay. Inhibitions of both activities were found to rise progressively with increasing concentrations of phlorizin. Kinetic studies indicated that inhibitions were noncompetitive with respect to all substrates tested, including glucose 6-phosphate, $PP_i$ and glucose. Pretreatment of microsomes with cetrimide accentuated the extent of inhibition by phlorizin of phosphotransferase activity but significantly ameliorated phlorizin-effected inhibition of glucose-6-phosphate phosphohydrolase activity. Consistent with these observations, $K_i$ values for phlorizin determined with the former activity decreased from a value of 5.5 mM, noted in the absence of detergent, to 1.3 mM following pretreatment of microsomes with 0.10% (w/v) cetrimide, while similar treatment caused an increase in $K_i$ values determined with the phosphohydrolase activity from 1.5 mM (no detergent) to 5.0 mM with 0.10% (w/v) cetrimide. The enzyme molecule seems to have 2 effective, activity-specific inhibitor-binding sites with varying affinities for phlorizin and differing with respect to modification by cetrimide. Bound inhibitor molecules are postulated to prevent the formation of phosphoryl-enzyme intermediates from binary enzyme-glucose 6-phosphate and enzyme-$PP_i$ complexes.

### 5366 THE DEVELOPMENT OF ARYLSULPHATASE IN THE SMALL INTESTINE OF THE RAT.

*(E.)* Danovitch, S. H. (NIH, Bethesda, Md.) and L. Laster. *Biochem J* 114(2):343-350, 1969.

Arylsulphatase activity was measured in stomach, proximal and distal third of small intestine, colon, liver and kidney of fetal and neonatal Sprague-Dawley rats and Swiss mice, with nitrocatechol sulphate as substrate. The specific activity in the distal small intestine, but not in the stomach, proximal small intestine or colon, increased about fourfold between 5 and 16 days after birth in both conventional and germ-free rats. No comparable increase occurred in the distal small intestine of the mouse. The specific activity of acid phosphatase in the distal small intestine of the rat rose only slightly when the arylsulphatase activity increased. The pH optimum and Michaelis constant of arylsulphatase activity of the distal small intestine were similar for 1-day-old, 9-day-old and adult rats. When extracts of distal small intestine of 1-day-old and 9-day-old rats were incubated together, the arylsulphatase activities were additive.

### 5367 HYDROLASES IN THE MUCOSA OF RAT SMALL INTESTINE FOR PHENYLALANINE-CONTAINING DIPEPTIDES. *(E.)*

Heizer, W. D. (Natl. Inst. Arthritis Metab. Dis., Bethesda, Md.) and L. Laster. *Biochim Biophys Acta* 185(2):409-423, 1969.

A qualitative survey, made with a high-voltage paper electrophoresis screening technique, showed that mucosa of rat small intestine catalyzes the hydrolysis of 15 dipeptides containing 7 different amino acids. A recently described assay method was used for the quantitative determinations of hydrolase activities for Gly-L-Phe, Gly-L-Try, L-Met-L-Phe, L-Ala-L-Phe, L-Leu-L-Phe, Gly-L-Tyr, L-Phe-L-Met, L-Phe-L-Phe, L-Phe-Gly and L-phenylalanine amide in rat intestinal mucosa. The L-Ala-L-Phe hydrolase activity was studied extensively. It is rapidly inactivated above 45C, is unable to catalyze the hydrolysis of L-Ala-L-Phe diketopiperazine and D-Ala-D-Phe, is only slightly active with D-Ala-L-Phe or L-Ala-D-Phe and is inhibited by *p*-chloromercuribenzoate but not by DFP or $\beta$-phenylpropionic acid. The soluble L-Ala-L-Phe hydrolase activity of intestinal mucosa requires a divalent cation, probably $Zn^{2+}$, for full activity and is distinct from the mucosal L-leucyl-$\beta$-naphthylamidase, Gly-L-Ala-L-Phe aminopeptidase, and L-Phe-Gly hydrolase activities. In mucosal homogenates approximately 90% of the activity of the L-Ala-L-Phe hydrolase, and of 6 of the other dipeptide hydrolases studied, is in the soluble fraction. The specific activity of soluble L-Ala-L-Phe hydrolase in intestinal mucosa is 30-fold higher than gastric, 4-fold greater than colonic and slightly less than renal specific activity. Specific activity in intestinal mucosa is 4-fold greater than in the remaining layers of the intestinal wall. Specific activities of hydrolases for L-Ala-L-Phe or L-Phe-Gly in mucosa from upper, middle and lower small intestine show no significant regional differences. L-Ala-L-Phe hydrolase activity of rat intestinal mucosa increases almost 4-fold between approximately the 7th and 25th days of life. Fasting a rat for 48 hr does not significantly change the specific activity of L-Ala-L-Phe or L-Phe-Gly hydrolase of intestinal mucosa or kidney.

5368 **DEGRADATION OF BILE SALTS BY HUMAN INTESTINAL BACTERIA.** *(E.)* Aries, V. (St. Mary's Hosp. Med. Sch., London, England), J. S. Crowther, B. S. Drasar and M. J. Hill. *Gut* 10(7):575-576, 1969.

Degradation products resulting from the incubation of taurocholate, cholic acid or deoxycholic acid with large intestine microorganisms (Enterobacteria, Enterococci, Clostridia, Lactobacilli, Bifidobacteria, Bacteroides, Bacilli, Veillonella and Anaerobic Sarcina) were measured using 0.05% substrate concentrations. The anerobic bacteria were found to be of major importance in the metabolism of bile salts and acids. Investigations on human fecal steroids indicate that this is probably true *in vivo* as well as in the *in vitro* situation used in these experiments.

5369 **EFFECT OF VITAMIN $D_3$ ON THE CALCIUM BINDING FACTOR IN RAT INTESTINAL MUCOSA.** *(E.)* Moriuchi, S. (Fac. Med. U. Tokyo, Japan), K. Ooizumi and N. Hosoya. *J Vitamin (Kyoto)* 15(2):178-184, 1969.

5370 **EFFECT OF DRIED BEANS AND SILICONE ON INTESTINAL HYDROGEN AND METHANE PRODUCTION IN MAN.** *(E.)* Calloway, D. H. (Stanford Res. Inst., Menlo Park, Calif.) and S. E. Burroughs. *Gut* 10(3): 180-184, 1969.

5371 **EFFECT OF PROTEIN INHIBITORS ON PROTEIN AND AMINO ACIDS IN MESENTERIC LYMPH.** *(E.)* Jacobs, F. A. (Sch. Med. U. North Dakota, Grand Forks) and E. E. Largis. *Proc Soc Exp Biol Med* 130(3):697-702, 1969.

5372 **CALCIUM IN THE INTESTINAL CONTENTS OF RATS ON DIFFERENT CALCIUM DIETS.** *(E.)* Sernka, T. J. (Dept. Radiation Biol. Biophys., U. Rochester, N. Y.) and A. B. Borle. *Proc Soc Exp Biol Med* 131(4):1420-1423, 1969.

5373 **NUTRITION BY INTRAPERITONEAL FAT INFUSION.** *(E.)* Lindqvist, B. (Dept. Med. U. Umeå, Sweden). *Acta Med Scand* 185(4):323-325, 1969.

5374 **ACCUMULATION OF ENDOGENOUS CARBOHYDRATE-CONTAINING COMPOUNDS IN THE CECUM OF THE GERMFREE RAT.** *(E.)* Loesche, W. J. (Forsyth Dent. Ctr., Boston,Mass.). *Proc Soc Exp Biol Med* 131(2):387-392, 1969.

5375 **COMPARATIVE ELECTRON MICROSCOPIC AUTORADIOGRAPHIC STUDIES OF CELLULAR PROTEIN METABOLISM WITH REFERENCE TO THE COLON GOBLET CELL.** *(Ger.)* Rohr, H. (Inst. Pathol., U. Freiburg i. Br., Germany) and H. Richter. *Path Europ* 2(3): 280-301, 1967.

See also: 5598,5720,5722

5376 **EXPERIMENTAL STUDIES ON HEMODYNAMICS WITH THE USE OF ENLARGEMENT RADIOGRAPHY IN DOGS WITH VARIOUS HEPATIC LESIONS.** *(Jap.)* Murase, K. (Gifu U. Sch. Med., Japan). *Acta Sch Med Univ Gifu* 15(3):569-598, 1968.

An enlargement radiographic study (2 x) was carried out in dogs with constriction of the thoracic inferior vena cava, presinusoidal portal obstruction produced by the injection of lycopodium particles into the portal vein, prehepatic portal constriction using an aluminum band, obstructive jaundice by ligation and severance of the common bile duct, or Eck's fistula. An individual radiogram of the hepatic artery, hepatic or portal veins was evaluated by injecting a 75% solution of NaI into the corresponding blood vessels. The diameters of the intrahepatic branches of the arteries and veins were measured at the corresponding sites in the left lateral branch of the liver. The radiogram revealed up to the 8th or 9th branch of the various hepatic vessels in all dogs with or without hepatic lesions. These findings were similar to those observed in healthy human adults. There was no characteristic finding in the radiograms in dogs with hepatic lesions in comparison with those of normal dogs. The 3rd and 4th intrahepatic branches were slightly dilated in all dogs with hepatic lesions, especially in those with constriction of the thoracic inferior vena cava, intrahepatic obstruction of the portal vein, obstructive jaundice or Eck's fistula. There were rough but fine intersected and small-sized portal branches in dogs with ascites and it is possible that communicating vessels exist among the intrahepatic portal branches. In dogs with intrahepatic obstruction of the portal vein or obstructive jaundice, the intrahepatic portal branches were markedly dilated, while the peripheral branches were markedly atrophied or vague in dogs with Eck's fistula. Changes in the intrahepatic vessels in dogs with constriction of the inferior vena cava were marked in comparison with those in dogs with other hepatic lesions. This may indicate the existence of a communicating anastomosis among various vessels.

5377 **PANCREATICODUODENAL ALLOTRANSPLANTATION IN DOGS.** *(E.)* Idezuki, Y. (U. Minnesota Med. Sch., Minneapolis), R. C. Lillehei, J. A. Feemster and R. H. Dietzman. *Vasc Dis* 5(2):78-89, 1968.

The entire pancreas and the proximal portion of the duodenum were removed from the donor dog in continuity with the celiac axis attached to a cuff of aorta and the portal vein. The segment was then perfused with a 10C perfusate solution until the effluent from the portal vein was clear. In all recipients, pancreaticoduodenectomy was performed immediately before transplantation. Gastrointestinal continuity was restored by anastomosis of the stomach to the duodenum in an end-to-end fashion, and anastomosis of the gallbladder, end-to-side to the proximal duodenum. All recipients received 500-800 ml Ringer's solution i.v. during the operation and for the first 2-3 postoperative days. In the group receiving immunosuppression, azathiopurine (4-8 mg/kg) was given daily beginning on the day of surgery and then reduced to every 2-4 days after 10-20 days, depending on the dog's condition. Methylprednisolone (10-50 mg/day) was given parenterally to some when rejection was detected by increased blood sugar. Twelve dogs in the immunosuppressive group of 23 died within 3 days from technical failures (vascular thromboses) or from early complications related to surgery. They are not considered further. The remaining 11 dogs lived from 4-110+ days. In most, blood sugar values were within normal limits 24 hr after transplantation and remained so until graft rejection took place; glucose tolerance curves and circulating plasma insulin levels were within normal limits. Of the 10 dogs receiving no immunosuppressive treatment, 7 died within 3 days of technical failures, and the other 3 lived 6, 7, and 98 days. The case history of the dog surviving 98 days is given in detail. The procedure seems to be feasible for patients suffering from terminal disease of the pancreas.

5378 **GAS EMBOLISM OF THE MESENTERIC VEINS CAUSED BY INTESTINAL IRRIGATIONS WITH AN $H_2O_2$ SOLUTION (EXPERIMENTAL RESEARCH IN THE RAT).** *(It.)* Guglielmi, M. (Inst. Gen. Clin. Surg.., U. Padova, Italy), G. Perrino and S. Pedrazzoli. *Chir Ital* 20(4):649-656, 1968.

Ten min after introducing 2 ml $H_2O_2$ at 6 vol % in the first and last ileal ansae, and in the descending sigma of the rat, gas embolism of the mesenteric veins was produced with a total filling of the vein with gas after 30-40 sec. With $H_2O_2$ at 4.8 vol % gas embolism was produced earlier in the vein of the small intestine (20 sec), than in the descending sigma (30 sec), filling the vein after 90-129 sec. Using $H_2O_2$ at 3.6 vol % gas embolism was produced after 90 sec in the small intestine, and after 120 sec in the descending sigma. With $H_2O_2$ at 2.4 vol % gas embolism was delayed and not constant. With $H_2O_2$ at 1.2 vol % no embolism was observed. Introduction of $H_2O_2$ at different dilutions in the cecum never caused gas embolism. No embolism was produced by introducing atmospheric air or pure oxygen in the mesenteric vessels. After an enema of $H_2O_2$ at 6 vol %, the rats stayed alive and in good conditions for 2 weeks without symptoms of pain in the intestinal ansae. It is concluded that intestinal irrigations of low $H_2O_2$ concentrations could be used in the newborn, without danger.

5379 **EXPERIMENTAL HEMODYNAMIC AND BIOCHEMICAL STUDY OF THE LIVER DURING HEMORRHAGIC SHOCK.** *(Fr.)* Guillet, R. (Edouard-Herriot Hosp., Lyon, France), P. Braconnot, M. Barbier, D. Stevanovic and U. Trsan. *Lyon Chir* 65(2):182-194, 1969.

Hemorrhagic shock was induced in 40 dogs by bleeding from the femoral artery with reduction of normal arterial pressure to 70-50 mm Hg (moderate shock) and below 50 mm Hg (severe shock). While the arterial pressure decreased during 30 min, 1 hr, 2 hr from 144 to 70, 54, and 43 mm Hg, resp., the portal pressure decreased from 4.2 to 3.4, 3.15 and 2.61 mm Hg. The hepatic arterial flow, from the normal value of 107 cc/min, became 43 and 25 cc/min after 1 and 2 hr, resp. The portal flow, from the value of 189 cc/min became 112 and 82 cc/min after 1 and 2 hr, resp. The hepatic resistance (portal pressure and portal flow ratio) increased. Resuscitation was associated with opposite phenomena: rise of hepatic flow and portal pressure with a decrease of hepatic resistance in 5 of 10 cases observed. The hemodynamic phenomena observed were accompanied by increase of glycemia from 0.54 g% to

1 g% after 1 hr. Lactic acid in suprahepatic vein increased from 14-20 mg/100 ml to 40 mg/100 ml after 1 hr and to 84 mg/100 ml after 2 hr. Pyruvic acid increased from 0.4 mg/100 ml to 2.2 mg after 1 hr. Blood pH was reduced from 7.51 to 7.09. Hematic potassium increased in suprahepatic vein to 24 mEq/liter in 13 of the 18 cases studied.

**5380 THE EARLY SINUSOIDAL LESION IN EXPERIMENTAL VENO-OCCLUSIVE DISEASE OF THE LIVER.** *(E.)* McLean, E. K. (Royal Free Hosp., London, England). *Brit J Exp Path* 50(3):223-229, 1969.

*In vivo* transillumination of liver margins with a Xenon lamp and perspex rods allowed still photography through a microscope. The technique was applied to the study of acute experimental veno-occlusive liver disease. Male Wistar rats, 100 to 200 g, were subjected to a single dose of dimethylnitrosamine (DMN) 30 mg/kg body weight i.p., or intragastric carbon tetrachloride ($CCl_4$) in a single dose of 2.5 ml $CCl_4$/kg body weight. DMN produced occlusion of the venous sinusoid outflow along with centrilobular necrosis in 24 hr. Resolution of the centrilobular necrosis began in 5 days with bizarre blood vessel formation. New outflow vessels were established in 10 to 11 days. $CCl_4$ does not produce major vasculature change along with centrilobular necrosis. Sinusoidal dilatation was shown to occur with heart failure.

**5381 HEMODYNAMICS OF THE ISOLATED PERFUSED HUMAN SCHISTOSOMAL FIBROTIC LIVER. WITH A POSSIBLE ROLE FOR A VASOACTIVE FACTOR.** *(E.)* Geumei, A. (Fac. Med., Alexandria U., Egypt), I. Issa, A. Aboul-Enein, M. El-Gendi, H. Effat and M. Mahfouz. *Amer J Trop Med Hyg* 18(4):533-538, 1969.

A method has been devised for the separation and subsequent perfusion of the liver from cadavers. The hemodynamics of 4 normal and 6 schistosomal fibrotic livers were studied. The mean arterial hepatic flow to the total hepatic flow was 36% in normal and 66% in schistosomal livers. The portal-vein outflow ratio (PVOR) in the normal and schistosomal livers was 38% and 72%, resp. Histamine had no effect on the hepatic-arterial flow, but it increased the resistance of both hepatic and portal veins. Histamine increased the PVOR as well as the ratio of hepatic-arterial flow. Histamine can reproduce in the perfused normal human liver most of the hepatic hemodynamic changes observed in the schistosomal liver and may play a role in the physiopathology of portal hypertension.

**5382 AUTOREGULATION AND INTERACTION BETWEEN TWO VASCULAR SYSTEMS IN DOG LIVER.** *(E.)* Takeuchi, J. (Sch. Med., Kanazawa U., Japan), T. Kubo, T. Tone, A. Takada, T. Kitagawa and H. Yoshida. *J Appl Physiol* 27(1):77-82, 1969.

Liver circulation was studied in 7 dogs 24 hr after the 2nd i.p. injection of carbon tetrachloride (1.6 ml/kg of 50 vol % solution in olive oil/24 hr). After a 24-hr fast and anesthesia, the abdomen was opened through a midline incision and splenectomy performed. The lesser omentrum, gastroduodenal artery with its ligament and other tissues surrounding the liver hilum were carefully dissected and ligated after the hepatic artery, portal vein and common bile duct were completely isolated. The hepatic artery was cannulated and perfused with blood from the right common carotid artery through a Mera roller-type pump. Hepatic arterial flow was interrupted for less than 30 sec. An artificial circuit recorded portal venous pressure and portal venous flow. In the normal liver, hepatic arterial flow was increased proportionately less than the increase in hepatic arterial pressure indicating autoregulation of hepatic arterial flow. In the normal liver, portal venous resistance was not significantly affected by hepatic arterial pressure changes, but in the damaged liver it was affected. Hepatic arterial resistance was virtually unchanged in both groups even after the complete stoppage of portal venous flow. The factor responsible for the autoregulation of hepatic arterial flow may be related to the myogenic nature of the hepatic arterial wall. In the normal liver there was no substantial interaction between the 2 afferent hepatic vascular systems: in the damaged liver portal venous resistance varied directly with hepatic arterial pressure.

**5383 ICTERUS AND LIVER CIRCULATION.** *(Ger.)* Neumayr, A. (Vienna, Austria). Pp. 287-294 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

**5384 CALCIUM AND MAGNESIUM CONTENTS OF GASTROINTESTINAL TISSUES IN SIX SPECIES.** *(E.)* Cassidy, M. M. (George Washington U. Med. Ctr., Washington, D. C.) and C. S. Tidball. *Amer J Physiol* 217(3):674-679, 1969.

**5385 SAFE HEPATIC ARTERY OCCLUSION IN DOGS.** *(E.)* Conolly, W. B. (U. California Sch. Med., San Francisco), F. O. Belzer and J. E. Dunphy. *Surgery* 66(4):772-774, 1969.

**5386 VAGOTOMY IN PHENYLBUTAZONE-INDUCED ULCERS. EXPERIMENTAL STUDY IN A RAT.** *(It.)* Biliotti, G. (Inst. Special Surg. Pathol., U. Florence, Italy), F. Ancreoli and A. Baroni. *Arch De Vecchi Anat Pat* 49(1):99-101, 1967.

**5387 RELATIONSHIP BETWEEN RECTAL, VISCERAL AND MUSCLE TEMPERATURES DURING BODY TEMPERATURE ELEVATION.** *(E.)* Man, A. (Govt. Hosp., Tel-Hashomer, Israel) and E. Sohar. *Israel J Med Sci* 3(4):535-538, 1967.

**5388 EFFECT OF GROUNDNUT MEAL CONTAINING AFLATOXIN ON CYNOMOLGUS MONKEYS.** *(E.)* Cuthbertson, W. F. J. (Glaxo Res. Ltd., Greenford, England), A. C. Laursen and D. A. H. Pratt. *Brit J Nutr* 21(4):893-908, 1967.

**5389 EXPERIMENTAL RESECTION OF THE INTESTINE IN NEWBORN PIGS.** *(E.)* McCance, R. A. (Infantile Malnutrit. Res. Unit, Kampala, Uganda) and A. W. Wilkinson. *Brit J Nutr* 21(3):731-740, 1967.

**5390 MATHEMATICAL ANALYSIS OF BILIRUBIN DYNAMICS IN MAN.** *(E.)* Araki, Y. (Fac. Med., U. Tokyo, Japan) and M. Kashima. Pp. 35-40 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

See also: 5144,5157,5231,5247,5318,5348,5427,5515

## DIAGNOSTIC PROCEDURES

5391 **INDIRECT HEMAGGLUTINATION AND AMEBA-IMMOBILIZATION TESTS AND THEIR EVALUATION IN INTESTINAL AND EXTRAINTESTINAL AMEBIASIS.** *(E.)* Prakash, O. (All-India Inst. Med. Sci., New Delhi, India), B. N. Tandon, I. Bhalla, A. K. Ray and V. K. Vinayak. *Amer J Trop Med Hyg* 18(5):670-675, 1969.

Antigen for the indirect hemagglutination test was made from ocally isolated strains of *Entamoeba histolytica*. These strains were associated with a *Klebsiella* strain. The antigen was prepared by washing and treating the amebae with formalin-$NH_4$OH-Polysorbate 80 and then subjected it to sonic distintegration. The ameba-immobilization test was modified and standardzed for this study. Sixteen patients with amebic liver abscess, 13 with amebic hepatitis, 3 with intestinal and hepatic amebiasis, 3 with acute intestinal amebiasis, 11 with chronic intestinal amebiasis, 32 with varying nonamebic conditions, and 27 apparently healthy persons were studied. Positive results of 75, 54, 36, 16, and 4% by the indirect hemagglutination test and 38, 62, 45, 13, and 0% by the ameba-immobilization test were obtained in cases of amebic liver abscess, amebic hepatitis, chronic intestinal amebiasis, miscellaneous-disease group, and apparently healthy individuals, resp. All 3 cases of intestinal and hepatic amebiasis and all 3 cases of acute intestinal amebiasis were positive by both tests. These results suggest that both tests are useful in the diagnosis of amebiasis.

5392 **HISTOCHEMICAL STUDIES OF ALKALINE PHOSPHATASE IN CARCINOMA OF THE LIVER.** *(E.)* Viranuvatti, V. (Siriraj Hosp., Dhonburi, Thailand), M. Haraphongse, T. Stitnimankarn, K. Limwongse and U. Plengvanit. *Amer J Dig Dis* 14(9):625-636, 1969.

Thirty-eight patients with proven hepatic carcinoma (19 hepatomas, 4 of an unclassified type, 5 cholangiomas, and 10 metastatic carcinomas) were studied. Statistically significant, positive correlations were found between the serum alkaline phosphatase level and the compression effect of carcinoma nodules on the adjoining liver cells, and between the serum enzyme and the sinusoidal phosphatase activity in tissue section. There was no correlation between serum alkaline phosphatase values and serum bilirubin concentration. Serofflocculation tests and iodine test were not significantly abnormal. Neither hepatoma nor metastatic cancer cells took a stain by the calcium-cobalt method of Gomori. The elevation of the serum alkaline phosphatase level in carcinoma of the liver is probably caused by intrahepatic obstruction of biliary channels and a compression effect on the adjoining hepatocytes by carcinoma nodules.

5393 **VALUE OF HISTOCHEMICAL REACTIONS FOR MUCOSUBSTANCES IN THE DIAGNOSIS OF CERTAIN PATHOLOGICAL CONDITIONS OF THE COLON AND RECTUM.** *(E.)* Filipe, I. M. (Westminster Med. Sch., London, England). *Gut* 10(7):577-586, 1969.

Histochemical methods to visualize neutral mucins and sulfated and nonsulfated acid mucosubstances were used in various pathological conditions of the large intestine and rectum. The material, obtained from surgical specimens, included benign and malignant tumors, nonspecific inflammations, ulcerative colitis, Crohn's disease, and diverticulitis. In normal rectal and colonic mucosa the 'normal mucous pattern' is a predominance of sulfated acid mucosubstances occupying most of the crypt cells, nonsulfated acid mucosubstances usually being present in the upper crypt, and the 2 types of acid mucosubstance, usually mixed, in the surface epithelium. Neutral mucosubstances can be found in the upper crypt and surface epithelium. Qualitative and quantitative changes were observed in the normal mucosa close to the tumor (transitional mucosa) and 2 zones can be described: a zone of oversecretion containing only nonsulfated acid mucosubstances and another zone in closer contact with the tumor showing very slight or no secretion. Cells of malignant tumors usually showed no secretory elements or only a scanty secretion of mixed neutral, sulfated and nonsulfated mucosubstances. In benign tumors 3 main histochemical groups were observed which agree quite well with the different morphological types of polyp. Areas of malignant transformation in some of these polyps show practically no secretion. Qualitatively there are no differences in mucous secretion between nonspecific inflammations, Crohn's disease, and ulcerative colitis, but quantitative variations in the amount of mucus were found. The amount of neutral mucosubstances present in normal mucosa is moderate, in nonspecific inflammations, moderate or slightly increased, in Crohn's disease decreased, and in ulcerative colitis absent. The amount of acid mucosubstance is variable in nonspecific inflammations, moderate in Crohn's disease, and decreased in ulcerative colitis. In Crohn's disease a marked difference in rectal mucosa was found compared with that in ulcerative colitis, but in the colon the differences were not so striking. Mucous secretion in colonic mucosa in diverticulitis is similar to normal mucosa.

5394 **THE USE OF "PERITONEAL TAP" AS AN AID TO DIAGNOSIS OF INTRA-ABDOMINAL LESIONS.** *(E.)* Stephens, F. O. (U. Sydney, Australia). *J Roy Coll Surg* 14(4):230-233, 1969.

In 50 patients with undiagnosed acute abdominal pain and peritonitis or with suspected intra-abdominal trauma a paracentesis was used for diagnostic purposes. Every positive tap, (17 of 33 patients with traumatic injuries, 14 of 17 nontraumatic) revealed evidence of a significant intraabdominal lesion and made possible immediate appropriate therapy. A negative tap (15 trauma cases including 5 laparotomies that revealed liver pathology in 2, 3 nontraumatic cases) did not prove that there is no significant intraabdominal lesion. The technique is simple and there were no complications from the procedure.

5395 **NORMAL VALUES OF D-XYLOSE EXCRETION IN URINE AFTER ORAL LOADING DOSE IN CHILDREN AND ADULTS. A MODIFICATION OF THE METHOD OF ROE & RICE.** *(E.)* Deckert, T. (Frederiksborg County Hosp., Hillerod, Denmark), S. Hvidt and K. Kjeldsen. *Scand J Clin Lab Invest* 19(3):263-268, 1967.

This study consisted of 37 children, aged from 4-15 yr, and 85 adults, all hospitalized but without gastrointestinal complaints, diabetes mellitus or heart disease. Renal function was normal. Lower concentrations of thiourea in glacial acetic acid and heating in boiling water were some modifications of the Roe & Rice method used for d-xylose determinations in urine. The advantages are that analysis takes less time, and is more sensitive and accurate. In the age group 4-6 yr the normal excretion of d-xylose in 24-hr urine was 37.4 ± 11.6%. The values fell steadily in older children, with the excretion approaching that of adults, which was 28.4 ± 12.2%. Children up to the age of 15 yr received 0.35 g d-xylose orally per kg, and adults a total of 25 g. No reduced excretion was observed in the age group over 60 yr. The percentage excretion in the urine seems to be largely independent of the dose.

5396 A MENTHOL LOADING TEST FOR GLUCURONIDE SYNTHESIS: NORMAL VALUES. *(E.)* Bolund, S. (Rigshospitalet, Copenhagen, Denmark), F. Falus and K. Jorgensen. *Scand J Clin Lab Invest* 19(3):288-290, 1967.

Young soldiers (19), aged 19 to 24, were chosen to represent a normal population as regards glucuronide synthesis. A menthol loading test, with the results expressed as the fraction of the menthol ingested that is excreted as glucuronide in the urine, showed a wide normal range. Patients with impaired synthesis of glucuronic acid and/or glucuronide, as a group, may show lower values than normals. However, as patients always seem to have some synthesizing capacity, the wide normal range of the menthol loading test, as performed in this study, makes it unsuitable as a routine diagnostic test in cases of hyperbilirubinemia which might be due to impaired glucuronide synthesis. A high result would indicate a sufficient synthesizing capacity, but a low result might be false, e.g., due to a low absorption of menthol. The test could probably by refined.

5397 VALUE OF THE SELECTIVE ARTERIOGRAPHY IN THE IDENTIFICATION OF ABDOMINAL TUMORS. *(Fr.)* Bert, J. M. (St.-Eloi Clin., Montpellier, France), J. L. Lamarque, J. L. Balmes and J. F. Ginestié. *Ann Radiol* (11/12):788-791, 1968.

Selective arteriography in the diagnosis of abdominal tumors is discussed. In gastric tumors it is rarely used; its main interest is in the diagnosis of the extra-mural extension of gastric cancer. In the presence of a pancreatic pain syndrome the results of this technique can give pathognomonic indications of a benign or malignant tumor; in the presence of a radioclinical pancreatic cancer syndrome it confirms and evaluates the extent of the cancer by the study of the arteries and the venous spleno-portal and mesenteric-portal return; it shows metastasis; preoperatively it indicates the vascularization of the descending mesocolic portion. In liver tumors selective arteriography facilitates a differential diagnosis of benign or malignant tumor, of metastasis, of localized benign tumors in relation with the hepatic segmentation, of regional chemotherapy in the secondary tumors, and of differentially arterialized metastasis from poorly vascularized metastasis. In the small intestine arteriography must be performed (after normal radiological examination) every time there is the suspicion of a tumor. In colic exploration the selective arteriography is considered as a complementary examination.

5398 THE VALUE OF DETERMINING ELECTROLYTES IN GASTRIC JUICE FOR THE DIAGNOSIS OF PEPTIC ULCERS. *(Rum.)* Banciu, T. (Med. Inst., Timisoara, Romania), N. Elian, L. Berinde, R. Reichart. S. Ignat, G. Dancău, P. Prodan and T. Brăiloiu. *Fiziol Norm Pat* 14(2):127-135, 1968.

Studies of electrolytes in gastric juice showed that there are significant differences between patients with stomach ulcers, those with duodenal ulcers, and controls. Concentrations of $Cl^-$, $Na^+$, $K^+$, and $Ca^{++}$ in gastric juice from 13 patients with stomach ulcers, 32 with duodenal ulcers, and 4 with both stomach and duodenal ulcers were determined with a flame photometer. Controls were 34 patients with gastritis or hepatocholecystitis and 21 normal subjects. Determinations were run on 4 samples of gastric juice collected under basal conditions and 4 collected after administration of 0.5 mg of histamine. In patients with stomach ulcers the $Cl^-$ concentrations increased slightly after histamine and then rapidly returned to their initial values or, in some cases, lower values. In patients with duodenal ulcers histamine caused a progressive increase in $Cl^-$ concentrations which remained elevated. After administration of histamine a decrease of about 50% occurred in $Na^+$ and $Ca^{++}$ concentrations in patients with duodenal ulcers while in patients with stomach ulcers they remained almost constant. $K^+$ concentrations followed no consistent pattern but usually tended to increase after histamine stimulation. The results of electrolyte determinations agreed well with the results of nocturnal intubation, biopsies of the gastric mucosa, radiological examinations, and Hollander's test. Electrolyte determinations are particularly useful in the diagnosis of borderline dyspepsias.

5399 THE RADIOLOGICAL DIAGNOSIS OF MEGACOLON (HIRSCHSPRUNG'S DISEASE) IN NEWBORNS AND INFANTS. *(Rus.)* Trofimova, Z. A. (Astrakhan Med. Inst., USSR) and S. B. Potashnikova. *Vestn Rentgen Radiol* 43(1):38-45, 1968.

Of 26 children (18 boys and 8 girls) with Hirschsprung's disease, 8 were newborns and 18 were less than 1 yr old. The results of clinical and radiological studies were confirmed at surgery in 14 cases; 12 patients were treated conservatively. Two patients died after surgery and 2 died before. Radiological findings and surgery showed that aganglionic zones were in the rectum and rectosigmoid in 5 cases, in the rectosigmoid in 13, in the rectosigmoid and distal part of the sigmoid in 6, and in the distal part of the sigmoid in 2. The length of intestinal strictures ranged from 3-25 cm; the diameter of the intestine was 1-3 cm in these regions. In contrast to other literature reports, these strictures were found even in newborns. It is recommended that radiological examinations include abdominal surveys with the patient in a horizontal position. More characteristic findings can be obtained with contrast medium in the lateral or oblique projections. A funnel-shaped dilation of the sigmoid hanging over an invisible rectum is characteristic of aganglionic regions in the rectum and rectosigmoid. If the rectosigmoid is aganglionic there is usually a short zone of constriction with a funnel-shaped structure leading straight into the dilated part of the intestine. A long zone of constriction with a funnel-shaped structure leading gradually into the dilated region of the intestine is characteristic of an aganglionic region in the proximal part of the large intestine. In the last 2 types of Hirschsprung's disease the proximal part of the rectum below the dilated region remains unchanged.

**5400 THE USE OF FRONTAL DOUBLE CONTRAST TOMOGRAPHY (PNEUMOPERITONEAL AND RETROPNEUMOPERITONEAL) IN THE DIAGNOSIS OF ABDOMINAL TUMORS.** *(Fr.)* Piétri, H. (La Timone Hosp., Marseille, France), C. Guien, A. Gauthier, J. P. Clément and J. Legré. *Ann Radiol* 11(11/12):785-787, 1968.

More than 200 pneumoperitoneal and retropneumoperitoneal tomographies have been performed without accidents, using an average of 1000 ml of gas for the retroperitoneal spaces and 400-500 ml for the peritoneal cavity. The main interest of this method is the visualization of both the peritoneal and the retroperitoneal organs of the large abdominal cavity, and of the large vessels (inferior vena cava, portal vein, elements of the splenic or renal pedicle). All the abdominal tumors can be explored by this method, except the small tumors not on the surface of an organ. It allows an accurate localization of the calcified neo-formations. In the liver it shows lobar hypertrophy, sometimes confused with tumoral neo-formations. This technique in 2 cases allowed the diagnosis of cysts of the kidney, when the clinical diagnosis was pseudo-cyst of the pancreas.

**5401 CYTOLOGICAL EXAMINATION IN THE DIAGNOSIS OF STOMACH CANCER.** *(Rum.)* Oproiu, C. (Ctr. Gastroenterol., Bucharest, Romania), G. Aposteanu, I. State and M. Debău. *Med Intern (Bucur)* 20(4): 467-474, 1968.

Cells obtained from stomach washings made on 127 patients were subjected to cytomorphological examination of alcohol-fixed, stained smears, examination of native preparations with phase-contrast microscopy, and cytochemical examination with acridine orange. These patients consisted of 27 with stomach cancer, 8 with benign gastric neoplasms, 47 with stomach ulcers, 19 with duodenal ulcers, 16 with gastritis, and 11 controls. Cytomorphological examination of smears from patients with stomach cancer gave positive results in 10 cases and false-negative results in the remaining 17. Phase-contrast and fluorescence microscopy gave positive results in 15 cases and negative results in 4. Complete cytological examination gave correct diagnoses in 18 of the 27 cases. In comparison, radiological examinations gave false-negative results in 3 cases and gastroscopic examinations, performed on 4 patients, gave 1 false-negative result. The cytomorphological examination gave only 1 false-positive result in the 127 cases in which it was employed; this was in a patient with an intestinal type of adenomatous proliferation in the gastric mucosa. Fluorescence microscopy gave 1 false-positive result in a patient with a stomach ulcer. It is considered that cytomorphological examination is a supplementary method for diagnosing stomach cancer, particularly in its initial stages. It is also recommended as a diagnostic method for stomach ulcers, achlorhydria, and pernicious anemia.

**5402 THE USE OF RADIOFIBRINOGEN IN THE EVALUATION OF THE COLD AREAS OF THE HEPATIC SCANS.** *(E.)* Riccioni, N. (Dept. Med., U. Pisa, Italy), M. F. Becchini, R. Navalesi and A. Lofaro. *J Nucl Biol Med* 12(3):101-106, 1968.

An external isotope counting method has been developed to differentiate neoplastic from non-neoplastic lesions in the liver. The time of radioactivity is determined after injection of $^{131}$I-fibrinogen (RIF) on "cold areas" detected by a liver radiocolloid scan. Forty-one patients with scintigraphic patterns of a solitary defect or multiple focal defects were examined with RIF. The results concern only the 21 cases in which the diagnosis was established by liver biopsy, laparoscopy, surgery or autopsy. RIF gave a positive result in 8 of 10 malignancies (hepatoma 5, metastasis 2, biliary tract neoplasm with liver infiltration 3). Two hepatomas had negative scans. Only 1 of 11 nonmalignant lesions (echinococcus cyst 3, cirrhosis 3, hemangiomas 1, chronic hepatitis 1, hepatic T.B. 1, obstructive jaundice 1 and retroperitoneal sarcoma 1) was positive and that was a case of multiple ecchinococcus cysts.

**5403 EVALUATION OF THE COMPLEMENT FIXATION TEST FOR ROUTINE SCREENING OF AMEBIASIS.** *(E.)* Kenney, M. (VA Hosp., New York, N. Y.) and C. H. Illes. *Health Lab Sci* 5(1):19-22, 1968.

The Micro-Kolmer complement fixation test performed on 360 known sera showed that among 211 negative controls 205 (97.2%) had nonreactive complement fixation tests and 6 (2.8%) gave positive reactions not exceeding 4+ in 1:2 dilutions of the sera. Among 126 sera of patients with known intestinal amebiasis, 59 (46.8%) gave reactive complement fixation tests with 4+ in 1:2 to 1:8 dilutions, 61 (48.4%) were nonreactive, and 6 (4.8%) were anticomplementary. The high percentage of anticomplementary sera was due to the fact that the known sera were obtained from many sources and some had been stored for some time. All 23 sera from cases of amebic involvement of the liver were strongly reactive and demonstrated 4+ in 1:8 to 1:32 dilutions of sera. Among 1520 sera collected at random 1403 were nonreactive and 117 (7.7%) reactive. Among the 117 cases with reactive tests, 22 could not be followed up, 54 could produce no adequate history but for 41 an adequate history could be obtained. Of these 41 cases 1 (2.7%) had a history of amebic abscess of the liver, 2 (4.8%) had histories strongly suggestive of amebic abscess of the liver, 2 (4.8%) had symptoms of hepatitis of obscure etiology, 13 (31.7%) had histories strongly suggestive of intestinal amebiasis, and 9 (21.9%) had been hospitalized for conditions which had not been related to amebiasis. Screening with the complement fixation test help to establish the correct diagnosis in cases with misleading symptomatology resulting from superimposed conditions masking potentially dangerous cases of amebiasis. Such screening would benefit those exposed to amebiasis in hyperendemic areas.

**5404 THE SIGNIFICANCE OF TRIGLYCERIDES, NONESTERIFIED FATTY ACIDS, AND SERUM PHOSPHOLIPIDS IN ACUTE AND CHRONIC HEPATITIS.** *(Rum.)* Torjescu, V. (Munic. Hosp., Turnu-Severin, Romania), E. Ceaușu, M. Văleanu, D. Pîrvu, M. Melencu and M. Urcan. *Med Intern (Bucur)* 20(7):817-823, 1968.

Serum lipid fractions were determined on 68 patients with viral hepatitis, 27 with chronic hepatitis, 12 with cirrhosis, and on

18 normal controls. Serum lipid values were normal in 1/3 of the patients with acute hepatitis and increased in the rest; subnormal values were found in chronic hepatitis and cirrhosis. For the most part, triglycerides remained within normal limits in acute and chronic hepatitis but were below normal in 3 patients with cirrhosis. No significant changes were found for phospholipids. Nonesterified fatty acid levels were elevated or in the high normal range in acute hepatitis; in chronic liver disease they ranged from 400-500 μEq/liter. Total serum cholesterol values were generally within normal limits; moderate variations paralleled those for nonesterified fatty acids. There was a correlation between lipid values and tests for dysproteinemia (chloranilic acid, thymol, and Kunkel tests) in severe forms of acute hepatitis and in chronic liver disease. This was most evident in advanced chronic hepatitis and cirrhosis. Serum lipid fraction values are of supplemental value in the diagnosis of severe and chronic liver disease but are of less value than biochemical tests which give information of the status of protein metabolism. Serum transaminase activities should be determined in acute hepatitis and the chloranilic acid test used in chronic hepatitis. The activities of ornithine-carbamyl transferase and liver-specific enzymes were abnormal in all cases.

5405 **HEPATOGRAPHY BY INTRA-SPLENIC INJECTION OF OIL CONTRAST MEDIUM (EXTRA FLUID LIPIODOL). ITS VALUE IN THE DIAGNOSIS OF INTRA-HEPATIC CANCEROUS FORMATIONS.** *(Fr.)* Guntz, M. (Regional Ctr. Hosp., Angers, France) and J. Caron. *Ann Radiol (Paris)* 11(11-12):777-784, 1968.

A modification of the technique of trans-splenic injection of lipiodol was tested on 50 patients. With previous splenoportography for comparison, or with television control of the passage of the contrast medium, lipiodol was injected in the spleen. The ultrafluid particles of lipiodol (0.3-1 μ) reached the sinusoids and penetrated the hepatocytes. With ultrafluid lipiodol hepatography was maximum after 24/48 hr; faster results were obtained with tension-modified lipiodol. The product is eliminated in the bile or the urine. No patients presented embolus. Follow-up showed no complications.

5406 **EVALUATION OF THE HEIDELBERG pH CAPSULE. METHOD OF TUBELESS GASTRIC ANALYSIS.** *(E.)* Yarbrough, D. R. (VA Hosp., Charleston, S. C.), J. C. McAlhany, N. Cooper and M. G. Weidner Jr. *Amer J Surg* 117(2):185-192, 1969.

In 26 patients the augmented histamine stimulation test was performed on consecutive days using the tube aspiration technique and extragastric titration of acid utilizing the Heidelberg pH capsule. The endoradiosonde, or Heidelberg capsule, is a miniaturized radio transmitter encapsuled in acrylic plastic and containing a pH meter and battery. Changes in pH alter the output voltages of the base battery which in turn control the frequency of the radio transmitter emission. Statistical analysis of the mean acid output as determined by 2 methods revealed no significant difference. The coefficient of correlation of the 2 methods (r = +0.869) was acceptable. Of the 26 patients studied, 7 were ultimately proved to have active duodenal ulcer, 6 had asymptomatic hiatus hernia, 2 had gastric ulcer, one had an ulcerated gastric carcinoma, and 10 had disease not related to peptic disease of the upper gastrointestinal tract. The use of the Heidelberg pH capsule as a means of simplifying the augmented histamine stimulation test proved to be reliable and acceptable. Studies of the effectiveness of one antiulcer regimen (milk and antacid solution administered hourly) in several patients using the Heidelberg pH capsule suggest further applicability in this area.

5707 **THE DIAGNOSTIC PROBLEM CAUSED BY THE LACUNAE IN THE HEPATIC SCINTIGRAPHY.** *(Fr.)* Gros, C. M. (Dept. Radiol., C.H.U., Strasbourg, France), R. Vergnes, C. Vrousos and J. Soutter. *Ann Radiol* 11(11/12):823-826, 1968.

The difficulties of interpreting the lacunae that are observed during hepatic scintigraphy performed with colloidal $^{198}$Au (300-400 μg in the adult and 100 μg in the child) are described. A limiting factor in scintigraphy is the difficulty of determining the extrinsic or intrinsic origin of the expansion process that causes the lacunae without the aid of clinical and radiological data. While in 1 case the liver dislocation, without deformation of the organ, suggested the extrinsic origin to be lesions (sympathoblastoma), in 2 other cases the marginal localization of the lacuna was not pathognomonic of the extrinsic tumor (in 1 case a sympathoblastoma, in the other case an intrahepatic diaphragmatic hepatic abscess). In cirrhosis the interpretation of the lacunar image is one of the most difficult problems. The decrease of the colloidal pexic power of the Kupffer cells causes a weak fixation of the radioactive element in the liver and a heterogeneous image in scintigraphy. This aspect creates a difficult differential diagnosis between cirrhosis and cancer. Four cases are presented: 2 cancer and 2 cirrhosis with similar scintigraphic images.

5408 **STUDIES ON LYMPHOGRAPHY. II. CYTOLOGICAL AND RADIOLOGICAL STUDIES FOLLOWING INTRAPERITONEAL INJECTION OF CONTRAST MEDIA INTO MICE AND GUINEA PIGS.** *(It.)* Bergamini, G. (Inst. Human Anat., U. Trieste, Italy), M. Scamperle and M. Basa. *Boll Soc Ital Biol Sper* 44(19): 1581-1583, 1968.

5409 **NONSPECIFIC O-STREPTOLYSIN INHIBITION IN EPIDEMIC HEPATITIS.** *(It.)* Fiorucci, G. (Munic. Hosp., Ivrea, Italy). *Quad Sclavo Diagn* 4(2):229-232, 1968.

5410 **DIFFICULTIES AND FAILURES IN PERITONEOSCOPY.** *(Rus.)* Nartsissov, T. V. (Gor'ki Med. Inst., USSR). *Khirurgiia (Moskva)* 44(9):51-54, 1968.

5411 **MULTIPLE PERORAL BIOPSY OF THE STOMACH.** *(Sp.)* Meeroff, J. C. (Metropolitan Sanitorium, Buenos Aires, Argentina) and R. Laguens. *Rev Esp Enferm Apar Dig* 27(7):1001-1012, 1968.

5412 **THE SIGNIFICANCE OF SELIGSON'S METHOD FOR THE ASSESSMENT OF THE BROMSULFALEIN PLASMA CONCENTRATION IN HEMOLYTIC, ICTERIC AND CHYLOUS SERUM.** *(Cz.)* Skaunic, V. (Med. Fac., Comenius U., Hradec Kralove, Czechoslovakia), S. Schejbalová and V. Nerad. *Cesk Gastroent Vyz* 22(3):201-204, 1968.

5413 STUDYING PANCREATIC FUNCTION WITH THE ERMINI-STEFANINI TEST. *(Sp.)* Garcia Vilela, V. E. *Rev Esp Enferm Apar Dig* 27(7):1049-1052, 1968.

5414 COMPARATIVE STUDY OF TRANSAMINASES AND OTHER ELEMENTS OF THE HEPATOGRAM, ESPECIALLY THE REACTIONS OF SERUM COLLOID LABILITY, IN DISEASES OF THE LIVER. *(Sp.)* Meeroff, M. (Prof. Dr. G. A. Alfaro Polyclin., Buenos Aires, Argentina), A. R. Folino, O. N. Pelizzari, B. Feldfeber and R. Celestino. *Medicina (Mex)* 48(1032):140-146, 1968.

5415 X-RAY DIAGNOSIS OF SPONTANEOUS INTERNAL BILIOENTERIC FISTULAE AND INTRAGASTRIC BILIARY CALCULI. *(Ger.)* Oláh, J. (Dept. Radiol., Semmelweis Munic. Hosp., Miskolc, Hungary). *Radiol Diagn (Berlin)* 9(1):41-46, 1968.

5416 HIGH VOLTAGE PAPER ELECTROPHORETIC STUDY OF GASTRIC JUICE IN GASTRIC DISEASES: ON THE ELECTROPHORETIC PATTERN OF NINHYDRIN STAINING COMPOUNDS IN GASTRIC JUICE BEFORE AND AFTER HISTAMINE STIMULATION. *(E.)* Miyata, N. (Jikei U., Tokyo, Japan). *Jikei Med J* 15(1):58-60, 1968.

5417 RECTAL BIOPSY: A REVIEW OF ITS DIAGNOSTIC USEFULNESS. *(E.)* Gear, E. V. Jr. (Duke U. Med. Ctr., Durham, N. C.) and W. O. Dobbins. *Gastroenterology* 55(4):522-544, 1968.

5418 PANCREATIC FUNCTION TESTS. *(E.)* Howat, H. T. (Royal Infirm., Manchester, England). *J Roy Coll Phys Lond* 3(1):85-93, 1968.

5419 GASTROGRAFIN IN THE DIAGNOSIS OF ACUTE PEPTIC ULCER PERFORATION. *(E.)* Hyatt, I. (Sinai Hosp., Baltimore, Md.). *Sinai Hosp J* 14(2):104-107, 1968.

5420 MODIFICATION TO THE TECHNIQUE FOR SMALL BOWEL BIOPSY IN CHILDREN. *(E.)* Harris, M. J., G. Harrington and J. Beveridge. *Amer J Dis Child* 115(1):43-47, 1968.

5421 AUTOMATIC TECHNIQUE FOR THE DETERMINATION OF BILIRUBIN IN THE BILE BY JENDRASIC'S METHOD. *(Fr.)* Chariot, J. (Bichat Hosp., Paris, France) and C. Roze. *Ann Biol Clin* 26(1/2):127-132, 1968.

5422 USE OF THE GLYCO-AMYLASE TEST IN DIAGNOSING PANCREATIC DISEASES. *(E.)* Prior, C. (Inst. Surg. Pathol., U. Genoa, Italy) and U. Valente. *Rass Arch Chir* 6(1):41-48, 1968.

5423 GASTROSCOPY IN THE EARLY DIAGNOSIS OF GASTRIC CANCER: EXPERIENCE WITH THE STORZ GASTROSCOPE IN 122 CASES. *(E.)* Poh, F. W. (U. Singapore). *Singapore Med J* 9(3):203-205, 1968.

5424 A GRAPHIC METHOD FOR DIRECT READING OF ELEVATED SERUM TRANSAMINASE VALUES DETERMINED BY THE "SCLAVO" COLORIMETRIC METHOD. *(It.)* Orsini, M. (Inst. Human Physiol., U. Naples, Italy) and P. Orsini. *Quad Sclavo Diagn* 4(2):256-270, 1968.

5425 RELATIONS BETWEEN ATP AND THE HOYT-MORRISON REACTION IN HUMAN VIRAL HEPATITIS. *(It.)* Manganaro, M. (Clin. Trop. Infect. Dis., U. Rome, Italy), N. Russo, A. De Maio and M. Castellani-Pastoris. *Quad Scalvo Diagn* 4(2):220-228, 1968.

5426 COMPETITION BETWEEN BILIRUBIN AND BROMSULFALEIN FOR BINDING WITH ALBUMIN. *(Cz.)* Kučerová, L. (Fac. Gen. Med., Charles U., Prague, Czechoslovakia) and V. Hoenig. *Sborn Lek* 70(7):209-215, 1968.

5427 LIVER BLOOD FLOW IN MAN DURING ABDOMINAL SURGERY. I. DESCRIPTION OF A METHOD UTILIZING INTRAHEPATIC INJECTIONS OF RADIOACTIVE XENON ($^{133}$Xe). NORMAL VALUES AND EFFECT OF TEMPORARY OCCLUSION. *(E.)* Gelin, L. E. (Sahlgren Hosp., Göteborg, Sweden), D. H. Lewis and L. Nilsson. *Acta Hepatosplen (Stuttgart)* 15(1):13-20, 1968.

5428 PREPARATION OF SULFOBROMOPHTHALEIN LABELED WITH $^{125}$I AND ITS METABOLISM IN THE RAT. *(Cz.)* Hykeš, J. (Fac. Gen. Med., Charles U., Prague, Czechoslovakia), M. Jirsa, P. Raban and V. Hoenig. *Sborn Lek* 70(2):60-64, 1968.

5429 INVESTIGATION OF EXUDATIVE GASTROENTEROPATHY BY THE POLYVINYLPYRROLIDONE I$^{131}$ TEST. *(Ser.)* Davčev, P. (Dept. Med., U. Skopje, Yugoslavia), B. Vanovski, G. Šestakov and I. Tadžer. *Lijecn Vjesn* 90(8):767-773, 1968.

5430 PRELIMINARY RESULTS OF RADIOTELEMETRIC STUDIES OF THE FUNCTION OF THE DIGESTIVE TRACT. *(Rus.)* Babskii, Ie. B. (Inst. Norm. Pathol. Physiol., Acad. Med. Sci. USSR, Moscow). *Vestn Akad Med Nauk SSSR* 23(12):34-44, 1968.

5431 THE GLYCO-AMYLASE TEST IN THE STUDY OF PANCREATIC FUNCTION. *(It.)* Ciampolini, E. (Inst. Spec. Med. Pathol., U. Siena, Italy), P. Ravaioli and R. Dringoli. *Quad Sclavo Diagn* 4(2):182-187, 1968.

5432 STUDYING GASTRIC FUNCTION BY MEANS OF THE HEIDELBERG CAPSULE. *(Sp.)* Solis Herruzo, J. A. (3rd Dept. Med. Pathol., U. Madrid, Spain) and M. Diaz Rubio Jr. *Rev Esp Enferm Apar Dig* 27(7):985-1000, 1968.

5433 THE EXPEDIENCY OF POSTOPERATIVE CHOLANGIOGRAPHY. *(Pol.)* Szadkowski, A. (L. Pasteur Hosp., Lódź, Poland) and E. Jankowska. *Pol Przegl Radiol* 32(1):101-105, 1968.

5434 ESOPHAGOSCOPIC DIAGNOSIS OF BENIGN TUMORS OF THE ESOPHAGUS. *(Rus.)* Gukasian, A. A. (Sci. Res. Inst. Clin. Exp. Surg., Minist. Hlth. USSR, Moscow) and A. F. Chernousov. *Grudn Khir* 10(3): 120-123, 1968.

5435 DIFFERENTIAL X-RAY DIAGNOSIS OF REFLUX-ESOPHAGITIS. *(Rus.)* Arablinskii, V. M. (Inst. Clin. Exp. Surg., Minist. Hlth. USSR, Moscow). *Grudn Khir* 10(3):115-120, 1968.

5436 ARTERIOGRAPHY IN THE DIAGNOSIS OF ABDOMINAL DISEASE. *(E.)* Kreel, L. (Royal Free Hosp., London, England). *Arq Gastroent* 6(2):93-100, 1969.

5437 LIVER SCINTISCANNING. *(E.)* Davies, E. R. (United Bristol Hosp., England). *Proc Roy Soc Med* 62(8):796-798, 1969.

5438 TRANSILLUMINATION OF THE ABDOMEN IN INFANTS. *(E.)* Mofenson, H. C. (Nassau Hosp., Long Island, N. Y.) and J. Greensher. *Amer J Dis Child* 115(4):428-431, 1968.

5439 SIGNIFICANCE OF THE 70 mm SERIES EXPOSURE MAGNIFIER IN FUNCTION STUDIES OF THE GASTROINTESTINAL TRACT. *(Ger.)* Riemann, H. (Ctr. Intern. Med., Johann Wolfgang Goethe U., Frankfurt/M, Germany). *Radiologe* 9(8):245-251, 1969.

5440 THE TECHNIQUE OF GASTROSCOPY. *(Ger.)* Krantz, K. (U. Hosp., Eppendorf, Germany). *Med Klin* 64(37):1673-1676, 1969.

5441 BILIARY ENDOSCOPY: AN APPRAISAL OF ITS VALUE IN BILIARY LITHIASIS. *(E.)* Schein, C. J. (Albert Einstein Coll. Med., Bronx, N. Y.). *Surgery* 65(6):1004-1006, 1969.

5442 SIGNIFICANCE OF THE ALBUMIN BOND. *(Ger.)* Bennhold, H. (Tübingen, Germany). Pp. 414-415 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5443 INFLUENCE ON $^{131}$I-BENGAL ROSE ELIMINATION BY OTHER BILIARY SUBSTANCES. *(Ger.)* von Oldershausen, H. F. (Tübingen, Germany). Pp. 435-436 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5444 A RADIOLOGICAL STUDY OF THE FUNCTION OF A CHOLEDOCHOSTOMY. *(Rus.)* Duberman, L. B. (Sokolskii Munic. Hosp. No. 2, Vologad Oblast, USSR). *Klin Med (Moskva)* 46(5):61-63, 1968.

5445 PRINCIPLES OF A DESCRIPTIVE SYSTEM OF MEDICAL SYMPTOMS AND ORGANIZATION OF THE FIELD OF DIAGNOSTICS FOR THE STUDY OF DIGESTIVE PATHOLOGY BY COMPUTERS. *(Fr.)* Gauthier, A. P. (Natl. Inst. Med. Res., Marseille, France), C. A. Cros, M. Borillo, P. Bernard, J. C. Gardin and H. Sarles. *Path Biol* 16(11-12/13-14):671-676, 1968.

5446 MORPHOLOGY OF SMALL BOWEL BIOPSIES. *(E.)* Schienk, E. A. (U. Rochester, N. Y.), M. Samloff and F. A. Klipstein. *Amer J Clin Nutr* 21(9):944-961, 1968.

5447 ARTERIOGRAPHY IN CHILDREN WITH ABDOMINAL MASS. *(E.)* Katsube, Y. (Tottori U. Sch. Med., Japan), H. Ishikawa, S. Nakasone and K. Sageshima. *Yonago Acta Med* 13(1):37-43, 1969.

5448 PEDIATRIC ARTERIOGRAPHY IN ABDOMINAL AND EXTREMITY LESIONS. CLINICAL EXPERIENCE, INDICATIONS, AND TECHNIC. *(E.)* Bron, K. M. (Child. Hosp., U. Pittsburgh, Pa.), R. R. Riley and B. R. Girdany. *Radiology* 92(6):1241-1255, 1969.

5449 ARTERIOGRAPHY IN INFANTS AND CHILDREN WITH EMPHASIS ON THE SELDINGER TECHNIQUE AND ABDOMINAL DISEASES. *(E.)* Nebesar, R. A. (Harvard Med. Sch., Boston, Mass.), D. J. Fleischli, J. J. Pollard and N. T. Griscom. *Amer J Roentgen* 106(1):81-91, 1969.

5450 DIAGNOSIS OF PATHOLOGICAL CHANGES IN THE STOMACH BY GASTROSCOPY: STILL AND CINE COLOUR PHOTOGRAPHY USING A NEW FIBEROPTIC GASTROSCOPE. *(E.)* Persyko, L. (Dept. Med., Queen's U., Kingston, Canada), J. E. Swift, B. Venkatachalam, H. A. Serebro and I. T. Beck. *Canad Med Ass J* 100(23):1067-1075, 1969.

5451 VALIDITY OF A QUESTIONNAIRE FOR DIAGNOSIS OF PEPTIC ULCER IN AN ETHNICALLY HETEROGENEOUS POPULATION. *(E.)* Epstein, L. M. (Hadassah Med. Sch., Jerusalem, Israel). *J Chronic Dis* 22(1):49-55, 1969.

5452 ESOPHAGOGASTROSCOPY: INDICATIONS, CONTRAINDICATIONS, LIMITATIONS AND RISKS. *(Por.)* Chaves, F. C. (Fac. Med., Lisbon, Portugal). *J Med (Porto)* 69(23):365-371, 1969.

5453 SKIN TESTS FOR FOOD ALLERGIES: THEIR DIAGNOSTIC SIGNIFICANCE. *(Fr.)* Cany, J. (Paris, France). *Maroc Med* 47(506):638-642, 1967.

5454 IRREGULAR DISTRIBUTION OF RADIOACTIVE GOLD COLLOIDS IN THE HEPATIC PARENCHYMA AND THE PROBLEM IN STANDARDIZATION OF THE HEPATOSCINTIGRAPHIC METHOD. *(It.)* Pavoni, P. (Inst. Special Med. Pathol., U. Rome, Italy), G. P. De Maio, L. Semprebene and G. Scuncio. *Acta Isotop (Padova)* 7(1/2):75-87, 1967.

5455 APPLICATION OF THE RADIOIODINATED TRIOLEIN TEST TO A GROUP OF

PATIENTS SUBJECTED TO GASTRECTOMY. *(It.)* Riccardi, A. (Inst. Nuclear Med., U. Milan, Italy) and R. Sanvito. *Acta Isotop (Padova)* 7(1/2):5-17, 1967.

5456 RADIOLOGICAL INDICATIONS OF THE FUNCTION OF THE BILE DUCTS IN VARIOUS TYPES OF GASTRIC SURGERY. *(It.)* Arciuli, L. (Inst. Radiol., U. Bari, Italy) and A. Racanelli. *Quad Radiol* 32(6): 949-967, 1967.

5457 STUDY OF LIVER FUNCTION BY GALACTOSE AND SULFOBROMOPHTHALEIN: THEIR RECIPROCAL INTERFERENCE. *(Fr.)* Spandri, P. (Med. Clin., U. Padua, Italy), C. Dal Palu' and R. Zuin. *Sem Hop (Paris)* 43(38/39):2304-2308, 1967.

5458 USE OF DRUG HYPOTONIA THROUGH PRIAMIDE IN THE RADIOLOGICAL STUDY OF THE LARGE INTESTINE. *(It.)* Ferolla, G. (Inst. Radiol., U. Modena, Italy) and R. Romagnoli. *Quad Radiol* 32(6):983-999, 1967.

5459 COMPARATIVE INVESTIGATIONS FOR THE DETECTION OF INTESTINAL PROTOZOA IN MAN USING THE MJFC-CONCENTRATION METHOD. [MERTHIOLATE-IODO-FORMALDEHYDE CONCENTRATION METHOD] *(Ger.)* Tchotchev, R. (Bernhard-Nocht-Inst. Marine Trop. Med., Hamburg, Germany). *Z Tropenmed Parasit* 18(4):475-479, 1967.

5460 ALIMENTARY TRACT ROENTGENOLOGY (VOLS. I AND II). *(E.)* Margulis, A. R. (San Francisco Med. Ctr., U. California) and H. J. Burhenne, Eds. St. Louis, Mo., C. V. Mosby Co., 1967. 1203 pp.

5461 RADIOGRAPHIC EXAMINATION IN BLUNT ABDOMINAL TRAUMA. *(E.)* McCort, J. J. Philadelphia, London, W. B. Saunders, Co., 1966. 252 pp.

5462 EXPLORATION OF THE ABDOMEN. *(E.)* Bassett, J. W. (U. Oregon Med. Sch., Portland). Springfield, Ill., Charles C. Thomas, 1967. 109 pp.

5463 MORPHOLOGY AND X-RAY SYMPTOMS OF LIVER METASTASES IN POSTMORTAL ANGIOGRAM OF THE HEPATIC ARTERY. *(Ger.)* Schroeder, H. (Inst. Cancer Res. German Acad. Sci., Berlin) and J. Gutzmann. *Radiol Diagn* 8(5):605-612, 1967.

5464 THE REFLUX OF A CONTRAST SUBSTANCE IN THE PANCREATIC DUCT IN OPERATIVE ROENTGENOCHOLEMANOMETRY AND ITS DIAGNOSTIC SIGNIFICANCE. *(Rus.)* Bagateliia, A. P. (Cent. Inst. Postgrad. Med., Moscow, USSR). *Vestn Khir Grekov* 99(10):38-40, 1967.

5465 DIAGNOSTIC SIGNIFICANCE OF A NEWLY DESCRIBED ESTERASE OF THE GASTRIC JUICE. *(Ger.)* Rapp, W. (Med. U. Clin., Heidelberg, Germany). *Verh Deutsch Ges Inn Med* 73(4):284-287, 1967.

5466 GALLBLADDER RADIOLOGY FROM DIFFERENT PROJECTIONS (SPECIALLY FROM THE SIDE VIEW). *(Ger.)* Seyss, R. (Neunkirchen Hosp., Austria). *Med Welt* 20(33):1788-1790, 1969.

See also: 5129,5152,5224,5225,5250,5272,5273,5392,5419,5482,5494,5509,5523,5532,5540,5560,5561,5564,5600,5641, 5669,5793,5796,5801,5939,5513

# GASTROINTESTINAL DISEASES

## ESOPHAGUS

### 5467 TREATMENT OF CARDIOSPASM. *(Rus.)*

Kolomiichenko, M. I. (A. A. Bogomol'ets Med. Inst., Kiev, USSR) and G. V. Zrazhva. *Khirurgiia (Moskva)* 44(5):119-125, 1968.

Soviet surgeons believe that cardiospasm is a functional disease produced by external stimulation and by viscero-visceral reflexes due to pathological changes in the body. Functional disturbances in the cardia gradually lead to organic changes and esophageal stenosis. This theory is supported by the disappearance of cardiospasm in 2 patients who underwent gastrectomies for duodenal ulcers and in 2 patients after removal of esophageal diverticula. Drug treatment of cardiospasm was temporarily successful in only 16 of 204 patients. A total of 385 esophageal dilatations were performed on 120 patients (63 females and 57 males) with cardiospasms of different degrees of severity. Associated diseases included esophageal diverticula (5), peptic ulcer (8), pulmonary tuberculosis (4), pregnancy (3), periesophagitis (2), and 1 case each of mitral insufficiency, cicatricial hernia, hemiplegia, and hydrocephalus with spastic paraparesis of the lower extremities. A rigid metal dilator of the Stark type and a flexible pneumatic dilator developed by the authors were used. Good or satisfactory results were obtained in all 120 cases, but 58 patients needed 2-4 courses of dilatation. Complications included syncope in 2, collapse in 1, laryngospasm in 1, and slight traces of blood on the dilator in 38.

### 5468 THE SIGNIFICANCE OF CORTICOSTEROIDS AND ANTIBIOTICS IN THE TREATMENT OF ACUTE BURNS OF THE ESOPHAGUS. (EXPERIMENTAL AND CLINICAL OBSERVATIONS). *(Rus.)*

Mozolewski, E. (Med. Acad., Gdansk, Poland), T. Chervy, Z. Przymanowski, S. Zawistowski and S. Zygmuntowicz. *Zh Ushn Nos Gorl Bolez* 28(5):71-76, 1968.

In experiments on 49 rabbits and 40 cats, animals with esophageal burns produced by 5% sodium hydroxide were given 40,000 U/kg/day of penicillin parenterally. Gram-positive bacteria were isolated from controls 4 days after the burn, but bacteria were isolated from only 2 controls 10 days after the burn. Although treated animals had less pronounced esophageal and mediastinal inflammation and their ulcers healed more rapidly than those of the controls, esophageal stricture occurred to the same extent in both groups. However, animals given penicillin had thinner scars and thinner bundles of collagen fibers because of the anti-inflammatory action of penicillin. In experiments on 25 cats, the ones treated parenterally with 25 mg/kg/day of cortisone and 50,000 U/kg/day of procain penicillin had milder inflammation, thinner scars, and less pronounced esophageal stricture than the controls. Cicatricial strictures developed in 13 of 92 (14%) patients with esophageal burns treated with antibiotics (penicillin alone or combined with streptomycin) and in 12 of 50 (42%) treated with antibiotics and corticosteroids (5 mg/kg/day of cortisone or synthetic corticosteroids). A larger percentage of strictures occurred among the group receiving antibiotics and corticosteroids since steroids were prescribed only for severe burns. However, the time required for esophageal dilatation was shorter in patients receiving steroids. Eighty two percent of all these patients recovered completely. These studies show that although antibiotics and corticosteroids alone cannot prevent esophageal strictures, they do reduce the thickness of stenotic scars. Steroid therapy is considered only an adjunct to esophageal dilatation.

### 5469 ESOPHAGEAL HIATAL HERNIA: 150 SURGICALLY TREATED CASES. A REVIEW. *(E.)*

McGinty, C. P. (St. Francis Hosp., Cape Gorardeau Mo.). *Missouri Med* 64(11);911-915, 1967.

A review of 150 patients (97 women and 53 men) who underwent hiatal hernia repair is presented. The indication for surgery included major complications (esophagitis, stricture, ulcer, bleeding, chronic pulmonary disease or painful incarceration), medical failures or symptomatic hiatal hernia when other abdominal surgery is undertaken (67 patients). A transabdominal approach was utilized in 125 cases (repair only, 40, repair plus vagotomy, 2, repair and vagotomy and pyloroplasty, 68). The thoracic approach was used in 24 patients while a combined approach was used in 1. An excellent result (no symptoms) was obtained in 39% (59), a good result (few symptoms) in 43%, (64%), a fair result (additional medical treatment needed) in 10% (14) and a poor result (further surgery needed) in 46% (6). (Four were lost to follow-up) There were 3 operative deaths.

### 5470 SURGICAL MANAGEMENT OF CANCER OF THE HYPOPHARYNX AND CERVICAL OESOPHAGUS. *(E.)*

Harrison, D. F. N. (Inst. Laryngology and Otology, London, England). *Brit J Surg* 56(2):95-103, 1969.

During 4 yr surgical resection of carcinoma of the lower pharynx and cervical esophagus was performed in 30 patients. The sites of the tumor included the pyriform fossa (1), posterolateral wall (5), postcricoid (17), pharyngo-esophagus (3), and cervical esophagus (4). Only 2 patients were Stage II or less. Multistage repairs were carried out in 14 patients. Nine died within the first yr. Reconstruction was incomplete in 8 of these who never swallowed by mouth. Five patients died with local recurrence of their disease, 2 with systemic metastases, and a further 3 with a general disease. Three patients remained alive and well 3 yr postoperatively (21% cure rate). A revascularized graft of small intestine or colon was used in 2 patients as part of a single-stage repair. One patient died on the fifth postoperative day of a cerebrovascular accident. The second died 6 months postoperatively of a hemorrhage due to recurrent tumor. A pedicle graft of colon was used in 7 patients as part of a single-stage repair. Three died of complications following surgery, while the other 4 died within 1 yr due to recurrent tumor. Seven patients, all with postcricoid or pharyngoesophageal tumors, had pharyngolaryngoesophagectomies followed by immediate pharnygogastric anastomoses. One patient died of myocardial degeneration 8 days postoperatively two died 4 and 9 months later from uncontrolled cervical metastases, and 4 were alive and well at 4 and 10 months after surgery. All were able to swallow in 8-11 days after surgery.

### 5471 SUBCUTANEOUS PLACEMENT OF THE LEFT COLON FOR ESOPHAGEAL BYPASS.

*(E.)* Dawson, J. H. (1001 Broadway, Suite 102, Seattle, Washington). *Amer Surg* 35(8):574-579, 1969.

In 20 instances of s.c. left colon pedicles used for an esophageal bypass and observed for 1-5 yr, there were no deaths. Three of the patients had carcinoma of the esophagus and 17 benign lye strictures. Results were good to excellent from a functional standpoint. Although leakage at the cervical anastomosis was the most common complication (6) the most objectionable persistent complication was regurgitation (5). Regurgitation was not a problem in those who underwent end-to-end anastomosis procedures in the neck. One disadvantage is cosmetic since the colon bypass s.c. placement is visible, but this was not a problem in any of the 20 patients.

5472 HIATAL HERNIA AND GASTROESOPHAGEAL REFLUX IN CHILDREN. *(E.)* McNamara, J. J. (Baylor U. Med. Ctr., Dallas, Texas), D. L. Paulson and H. C. Urschel Jr. *Pediatrics* 43(4, pt 1):527-532, 1969.

Thirty patients under 20 yr of age with gastroesophageal reflux are presented. Eighteen patients underwent surgical repair. Their median age was 13 with a range of 3-19 yr. Ten were female and 8 were male. Mean duration of symptoms was 6 yr with a range of 1-15 yr. Three had respiratory complications alone, 2 had esophageal complications alone, and 13 had both respiratory and esophageal complications or symptoms as indication for surgery. Surgical patients all represented failure of at least 1 yr of medical treatment. Fourteen patients were asymptomatic (excellent result) 6 months to 6 yr after surgery. One was considered a good result, 1 fair and 2 poor or failures of surgical treatment. The result of surgical treatment depends principally on patient selection. The data indicates that many recurrent respiratory problems of unexplained etiology in infants and children are due to gastroesophageal reflux and aspiration.

5473 ESOPHAGEAL SUBSTITUTION. *(E.)* Neptune, W. B. (Tufts U. Sch. Med., Boston, Mass.). *Amer J Gastroent* 52(3):218-223, 1969.

Twelve cases of esophageal by-pass using segments of the right colon are presented. High lye strictures were successfully treated in 2 cases. Of 10 cases of carcinoma of the upper two-thirds of the esophagus, 2 had by-pass and subsequent resection, 2 had by-pass and resection in 1 stage, and 6 underwent by-pass without any attempt at resection. Two of the last group later received radiation therapy. There was 1 death due to myocardial infarction among the cancer patients. One patient suffered a traumatic perforation of the by-pass postoperatively which healed spontaneously as did another patient's cervical anastomosis leak. Both patients who had had second stage esophageal resections developed empyema which necessitated drainage. All the cancer patients but 1 died of their disease after about 1 yr, 1 is still alive 8 months after surgery.

5474 METHOD OF SUPERIMPOSING AN ANASTOMOSIS IN THE NECK IN ESOPHAGOPLASTY. *(Rus.)* Shneider, G. G. (Riga Med. Inst., USSR). *Klin Khir (Kiev)* (7):58-60, 1967.

5475 OBSTRUCTION OF CARDIO-ESOPHAGEAL JUNCTION BY A RUBBER DRAIN: REPORT OF A CASE. *(E.)* Grayer, S. P. (Albert Einstein Coll. Med., Bronx, N. Y.) and M. A. Hardy. *Amer Surg* 35(7):535-537, 1969.

5476 FUNCTIONAL LIGAMENTOUS ESOPHAGUS STENOSIS IN THE CHILD. [CASE REPORT] *(Ger.)* Niemann, H. (Radiol. U. Clin., Göttingen, Germany) and G. Ebert. *Z Kinderchir* 7(2):297-300, 1969.

5477 ESOPHAGEAL ATRESIA: SUCCESSFUL PRIMARY ANASTOMOSIS AFTER OPERATIVE ELONGATION OF THE UPPER POUCH. [CASE REPORT] *(E.)* Okmian, L. (Karolinska Hosp., Stockholm, Sweden) and A. Livaditis. *Z Kinderchir* 7(2):192-196, 1969.

5478 END TO SIDE OPERATIVE TECHNIC FOR ESOPHAGEAL ATRESIA WITH TRACHEO-ESOPHAGEAL FISTULA. [CASE REPORT] *(E.)* Leix, F. (U. Southern California Sch. Med., Los Angeles) and C. E. Schwab. *Amer J Surg* 118(2):225-235, 1969.

5479 TRANSTHORACIC, TRANSGASTRIC INTERRUPTION OF BLEEDING ESOPHAGEAL VARICES. [CASE REPORT] *(E.)* Skinner, D. B. (Johns Hopkins Hosp., Baltimore, Md.). *Arch Surg (Chicago)* 99(4):447-453, 1969.

5480 FUNCTION OF THE DISTAL ESOPHAGUS AFTER SURGICAL REPAIR OF ESOPHAGUS ATRESIA. *(Ger.)* Ebel, K. D. (Child. Hosp., Cologne, Germany). *Ann Radiol* 12(3-4):159-162, 1969.

5481 ESOPHAGEAL STRICTURE ASSOCIATED WITH CROHN'S DISEASE. [CASE REPORT] *(E.)* Dyer, N. H. (St. Bartholomew's Hosp., London, England), P. L. Cook and R. A. K. Harper. *Gut* 10(7):549-554, 1969.

5482 DIAGNOSIS AND TREATMENT OF DIFFUSE ESOPHAGEAL SPASM. [CASE REPORT] *(E.)* Rider, J. A. (Franklin Hosp., San Francisco, Calif.), H. C. Moeller, E. J. Puletti and D. C. Desai. *Arch Surg (Chicago)* 99(4):435-440, 1969.

5483 TUBERCULOSIS OF THE ESOPHAGUS. *(E.)* Fahmy, A. R. (Dept. Surg., Ain Shams U., Cairo, Egypt), R. Guindi and A. Farid. *Thorax* 24(2):254-256, 1969.

5484 SPONTANEOUS SUBMUCOSAL HEMATOMA OF THE ESOPHAGUS: "ESOPHAGEAL APOPLEXY". [CASE REPORT] *(E.)* Talley, N. A. (Prince Henry Hosp., Sydney, Australia) and R. Nicks. *Med J Aust* 2(3):146-150, 1969.

5485 FIBROVASCULAR POLYP–A BENIGN INTRALUMINAL TUMOR OF THE ESOPHAGUS. *(E.)* Jang, G. C. (Harvard Med. Sch., Boston, Mass.), M. E. Clouse and F. G. Fleischner. *Radiology* 92(6):1196-1200, 1969.

5486 DEXTROROTATION AND SUB-PHRENIC PREESOPHAGEAL FIXATION OF THE GASTRIC FUNDUS WITH LOW FIXATION OF THE CARDIA IN THE TREATMENT OF HIATUS HERNIA. *(Fr.)* Schobinger, R. A. (Lucerne, Switzerland). *Helv Chir Acta* 36(1/2):3-8, 1969.

5487 CONTROL OF THE HYPERDYNAMIC CIRCULATION IN PATIENTS WITH BLEEDING ESOPHAGEAL VARICES. *(E.)* Johnson, G. Jr. (U. North Carolina Sch. Med., Chapel Hill), N. A. Womack, O. F. Gabriele and R. M. Peters. *Ann Surg* 169(5):661-671, 1969.

5488 CERVICAL ESOPHAGOPLASTY WITH A FREE FORMED JEJUNUM. AN EXPERIMENTAL STUDY. *(Sp.)* Tamames, S. (Fac. Med. Madrid, Spain), J. Gomez Sanchez and M. Sanchez Vera. *Cir Ginec Urol* 22(2):288-292, 1968.

5489 RATIONAL TREATMENT OF GASTRO-ESOPHAGEAL VARICES. *(E.)* Fomon, J. J. (Dept. Surg., U. Miami, Fla.) and W. D. Warren. *Med Times* 97(5):95-111, 1969.

5490 TREATMENT OF EFFORT RUPTURE OF THE ESOPHAGUS BY EPIGASTRIC CELIOTOMY. *(E.)* Berne, C. J. (U. Southern California Sch. Med., Los Angeles), A. E. Shader and D. B. Doty. *Surg Gynec Obstet* 129(2):277-280, 1969.

5491 REFLUX ESOPHAGITIS TREATED WITH GAVISCON. *(E.)* Amdrup, E. (Munic. Hosp., Copenhagen, Denmark) and B. M. Jakobsen. *Acta Chir Scand* Suppl. 396:16-17, 1969.

5492 THE SIGNIFICANCE OF DYSPHAGIA IN DIAGNOSIS OF ESOPHAGEAL DISEASE. *(E.)* Kramer, P. (Boston U. Sch. Med., Mass.). *Med Times* 97(8):148-153, 1969.

5493 SPONTANEOUS RUPTURE OF THE DISTAL THORACIC OESOPHAGUS. *(E.)* Brownstein, E. G. (Wimmera Base Hosp., Horsham, Victoria, Australia). *Med J Aust* 1(17):849-852, 1969.

5494 ACHALASIA OF THE ESOPHAGUS SIMULATING PERICARDIAL EFFUSION–A PROBLEM IN CARDIOGRAPHIC DIAGNOSIS. REPORT OF A CASE. *(E.)* Saha, S. K. (Freedmen's Hosp., Washington, D. C.), M. Ismail and J. B. Johnson. *Med Ann DC* 38(9):493-498, 1969.

5495 ESOPHAGEAL DYSPHAGIA CAUSED BY *CANDIDA ALBICANS.* *(Fr.)* Tchédomir, I. *Lille Med* 12(8):905-906, 1967.

5496 HERNIA OF THE ESOPHAGEAL HIATUS IN BABIES. [CASE REPORT] *(Dut.)* Boerema, I. (Binnen Hosp., Amsterdam, Netherlands). *Nederl T Geneesk* 111(42):1853-1862, 1967.

5497 THE PROPHYLAXIS AGAINST COMPLICATIONS IN INTUBATION OF THE ESOPHAGUS FOR CANCER. *(Rus.)* Shain, A. A. (Kuibyshev Regional Oncol. Dispensary, USSR). *Vopr Onkol* 13(9):89-93, 1967.

5498 A MECHANICAL SUTURE FOR END TO END AND SIDE TO SIDE ENTERO-ESOPHAGEAL ANASTOMOSIS. *(Rus.)* Sviridov, N. A. (Tula Oncol. Dispensary, USSR). *Vopr Onkol* 13(9):85-89, 1967.

5499 LIGATION OF THE ENTIRE ESOPHAGUS IN PATIENTS WITH BLEEDING VARICES. [CASE REPORT] *(Dut.)* Boerema, I. (Wilhelmina Hosp., Amsterdam, Netherlands), P. J. Klopper and A. A. Holscher. *Nederl T Geneesk* 111(36):1549-1554, 1967.

5500 HERNIES HIATALES ET ECTOPIES PARTIELLES DE L'ESTOMAC CHEZ L'ENFANT (HIATAL HERNIAS AND PARTIAL ECTOPIAS OF THE STOMACH IN INFANCY). *(Fr.)* Rovirolta, E. Paris, Masson et Cie, 1967. 135 pp.

5501 CARCINOMA OF THE THORACIC ESOPHAGUS AND CARDIA. A REVIEW OF 146 CASES. *(E.)* Kock, N. G. (Dept. Surg. I, U. Göteborg, Sweden), E. Lewin, S. Pettersson and B. Stener. *Acta Chir Scand* 133(5):375-380, 1967.

5502 CURRENT PROBLEMS IN THE TREATMENT OF THE SEQUELLAE OF CHEMICAL BURNS OF THE ESOPHAGUS AND THEIR COMPLICATIONS. *(Rus.)* Shneider, G. G. (Riga Med. Inst., USSR). *Khirurgiia (Moskva)* 44(9):109-111, 1968.

5503 MANAGEMENT OF ESOPHAGEAL LESIONS CAUSED BY CHEMICAL BURNS. *(E.)* Holinger, P. H. (U. Illinois Coll. Med., Chicago). *Ann Otol* 77(5):819-829, 1968.

5504 AN UNUSUAL CASE OF FOREIGN BODY IN THE ESOPHAGUS. *(E.)* Patra, B. S. (Postgrad. Inst. Med., Ed. Res., Chandigarh, India) and I. A. Chitambar. *Indian J Surg* 30(4):382-384, 1968.

5505 SPONTANEOUS RUPTURE OF THE ESOPHAGUS PRESENTING AS AN ACUTE ABDOMINAL CATASTROPHE. *(E.)* Campbell, D. (Brooke Gen. Hosp., Ft. Sam Houston, Texas) and W. A. Cox. *Surgery* 66(2):304-308, 1969.

5506 ESOPHAGEAL DIVERTICULA. *(Por.)* Santo Esteves, E. *J Med (Porto)* 65(1314):766-769, 1968.

5507 ESOPHAGOGASTRIC JUNCTION. *(Rev.)(E.)* Mustard, R. A. (Toronto Gen. Hosp., Canada). *Amer J Surg* 118(3):377-383, 1969.

5508 REGIONAL ESOPHAGITIS: A SPECIFIC ENTITY SIMULATING CROHN'S DISEASE.

## ESOPHAGUS

*(E.)* Madden, J. L. (St. Clare's Hosp., New York, N. Y.), J. M. Ravid and J. R. Haddad. *Ann Surg* 170(3):351-368, 1969.

5509 RUPTURE OF THE ESOPHAGUS AT EXAMINATION OF GASTRIC JUICE. *(Sw.)* Tomenius, J. (Hygiea, Sweden). *Nord Med* 78(36):1162-1163, 1967.

5510 ENDOSCOPIC TREATMENT OF HYPOPHARYNGEAL DIVERTICULA. *(E.)* White, I. L. (Long Beach, Calif.). *California Med* 109(5):374-377, 1968.

5511 DIAGNOSTIC ELEMENTS OF CANCER WHICH DEVELOPED IN IDIOPATHIC MEGAESOPHAGUS. [CASE REPORT] *(Fr.)* Toison, G., J. Charles and J. C. Paris. *Lille Med* 12(8):927-935, 1967.

See also: 5149,5275,5434,5435,5452,5715

## STOMACH

(Gastric ulcer is placed with peptic ulcer)

5512 CRITERIA FOR DETERMINING THE AMOUNT OF MILITARY DISABILITY AFTER GASTRIC SURGERY. *(Fr.)* Heull, F., G. de Ren, G. Petiet, M. Bas and P. Anciaux. *Ann Med Nancy* 7:1691-1699, 1968.

A statistical and critical review was made of the criteria used by experts in determining compensation rates for military pensioners operated on for gastric ulcers. There were 200 gastrectomies and 78% of the pensioners were between 50 and 70 yr old. There were 24 reoperations: 9 after suture of a perforated ulcer with an average delay of 4 yr, 9 gastrectrectomies after gastroenterostomies, and 6 gastrectomies after gastrectomy. A study of complications showed early syndrome in 48.5% and late in 11%; diarrhea in 34%, persistence of pain in 40%, underweight in 42%, asthenia in 47%, ulcer of the stump in 3.5%, peptic ulcers in 3.5%, gastritis and gastrojejunitis in 17.5% and cardioesophageal reflux in 7%. The compensable rate for these complications was calculated. Other studies were made of the complications observed after other gastric surgical procedures: simple suture for perforated ulcer (22), gastroenterostomy (27), vagotomy with gastroenterostomy (19) and vagotomy with pyloroplasty (4).

5513 COMPARATIVE FINDINGS FROM A STUDY OF GASTRIC ACID PRODUCTION WITH INSULIN AND THE GASTROTEST. *(Rus.)* Poslavskii, E. E. (N. N. Burdenko Milit. Hosp., Moscow, USSR) and E. E. Giller. *Lab Delo* (10):595-598, 1968.

A comparison was made of the results of the insulin test and Gastrotest in 51 patients. The insulin test consisted in measuring gastric acidity in fasting patients in response to mechanical stimulation and injection of 12 U of insulin while the Gastrotest involved determination of the urinary excretion of 3-phenylazo-2,6-diaminopyridine after a standard hospital breakfast. Results of the Gastrotest showed hyper-, normo-, and hypochlorhydria in most patients shown by the insulin test to have achlorhydria. Results obtained with the insulin test are attributed to inhibition of acid secretion by introduction of a stomach tube. In the authors' modification of the Gastrotest it is recommended that the collection of urine should be started only 1½ hr after patients have ingested Gastrotest tablets. The slow excretion of the dye may be due to administration of caffeine with the breakfast. The Gastrotest method is particularly recommended for patients in whom the introduction of a stomach tube is undesirable or contraindicated.

5514 EXPERIENCE WITH AND THOUGHTS ON GASTRIC STUMP CARCINOMA. *(Ger.)* Huber, P. (Surg. Clin., U. Innsbruck, Austria) and H. Bösmüller. *Bull Soc Int Chir* 27(6):550-556, 1968.

Of 79 patients who developed stomach cancer after gastrectomy for peptic ulcer, 46 (58%) were inoperable. Five of the 33 patients on whom radical operations were performed died after surgery. Only 14 of the 56 patients on whom the TNM stage was determined had no metastases; 16 had metastases into the lymph nodes and 29 had distant metastases. Only 7 of those who underwent radical surgery lived for more than 2 yr and 3 lived for more than 3 yr; these 3 patients had no metastases at surgery. These poor results are due to the advanced stage at which most tumors were diagnosed. It is considered that there is no causal relationship between gastrectomy and the subsequent development of stomach cancer. The high incidence of stomach cancer in gastrectomized patients is attributed to gastritis, which is common among these patients, and to a tendency to drink too much alcohol after gastrectomy.

5515 DISTRIBUTION OF THE GASTRIC ARTERIES. SURGICAL OBSERVATIONS. *(Fr.)* Levasseur, J. C. (Ctr. Res. Digestive Surg., Paris, France) and C. Couinaud. *J Chir (Paris)* 95(1):57-58, 1968.

Gastric arterial distribution has been studied by means of liquid plastic injection or by arteriography, in cadavers. With these methods the existence of a preferential area for every artery has been established. Critical zones with precarious vascularization have been observed (superior part of large tuberosity and inferior part of antro-pyloric canal). The communication between various gastric areas are scarce between the right gastroepiploic artery and the splenic artery, abundant between the splenic artery and the anterior cardiac tuberosity artery. Extra-gastric anastomosis between the arteries were described: between the gastroepiploic artery at the level of the large curvature and between the pyloric artery and the coronary gastric artery at the level of the small curvature. The functional importance of the various gastric arteries have been evaluated: the most important is the coronary gastric artery.

5516 OCCUPATIONAL VARIATIONS IN MORTALITY FROM GASTRIC CANCER IN RELATION TO DIETARY DIFFERENCES. *(E.)* Sigurjonsson, J. (Dept. Hyg., U. Iceland, Reykjavik). *Brit J Cancer* 21(4):651-656, 1967.

Data were obtained from death certificates for all adult males dying in Iceland from 1951-1960. The percentage frequencies for stomach cancer deaths (at ages 35-64) were 25.0 for farmers, 19.0 for laborers, 15.5 for seamen, 9.9 for craftsmen and 8.4 for white collar workers. Deaths from arteriosclerotic and degenerative heart diseases showed frequency variation according to occupational classes in inverse order to that for stomach cancer. Downward trend in gastric cancer mortality, geographical variation, rural-urban differences, and occupational differences; all appear to be related to changes and differences in dietary habits, specifically to a relationship between gastric cancer and consumption of home smoked and singed foods, which are the main sources of 3,4-benzpyrene and other polycyclic hydrocarbons in the Icelandic diet. For example, in farm smoked mutton, heavily exposed to smoke from a stove, as much as 20 μg/kg of 3,4-benzpyrene was present compared with only 1 μg/kg in commercially (gas flame) smoked mutton.

5517 NEUROLOGICAL DISEASE AFTER PARTIAL GASTRECTOMY. *(E.)* Williams, J. A. (Gen. Hosp., Birmingham, England), G. S. Hall, A. G. Thompson and W. T. Cooke. *Brit Med J* 3(5664):210-212, 1969.

Clinical and laboratory signs of neurological disease were found in 14 patients (10 male, 4 female with an average age of 57 yr) many yr (5-37) after partial gastrectomy. Nine were gastric and 5 duodenal ulcers. All complained of difficulty in walking and the majority complained of paresthesia or numbness. Only 1 was seriously anemic. Vitamin $B_{12}$ deficiency occurred in most patients, but only the 3 with signs of subacute combined degeneration of the cord and no osteomalacia responded well to treatment.

### 5518 ENVIRONMENTAL FACTORS IN THE AETIOLOGY OF GASTRIC CANCER. *(E.)*

Ashley, D. J. B. (Morriston Hosp., Swansea, Wales). *Brit J Prev Soc Med* 23(3):187-189, 1969.

The relationship between mortality from gastric cancer in men and women and a number of environmental variables was analyzed by the method of multiple regression. A positive association with general social factors, population density (correlation coefficient male 0.33, female 0.118) and social class (0.564, 0.493) was confirmed. A positive association with atmospheric pollution was found in men but not in women. A positive association with the dusty coal and textile industries has been found. The mechanism of the association with the last 2 environmental factors may be related to the inhalation of carcinogenic substances followed by swallowing of sputum or food may be contaminated before ingestion by carcinogens in the atmosphere or in dust.

### 5519 PANCREATIC FUNCTION IN PATIENTS AFTER GASTRECTOMY. *(Cz.)*

Beňo, I. (Res. Inst. Human Nutrit., Bratislava, Czechoslovakia), A. Bučko and M. Ovečka. *Cesk Gastroent Vyz* 23(2):66-73, 1969.

At least 6 months after gastrectomy pancreatic function in 35 patients was assayed by examinations of amylase blood level after i.v. administration of pancreozymin and the maximum bicarbonate concentration and enzyme activity after i.v. administration of secretin and pancreozymin. In 20% of the patients pathological values of amylase activity were found in the blood; the average amylase blood level 1 hr after the administration of pancreozymin was statistically significantly higher in the group of surgically treated patients than in controls. The average value of enzyme activity in the pancreatic juice after i.v. administration of pancreozymin was significantly lower than in the control group but still within the normal range. A lower maximum value was found in 45.8% of the 24 patients examined. A reduction in maximum bicarbonate concentration and less frequently a reduction in protease and lipase activity were observed. Amylase values in pancreatic juice did not differ from normal in any patients after surgery.

### 5520 NEUROMUSCULAR DISORDER FOLLOWING GASTRIC RESECTION. *(E.)*

Kniffen, J. C. (U. Florida Coll. Med., Gainesville) and D. T. Quick. *Arch Intern Med (Chicago)* 124(3):336-340, 1969.

Five women and 1 man had muscle weakness and wasting following subtotal gastrectomy and gastroenterostomy. Five of the patients (age, 45-75 yr) had a Billroth II gastrojejunostomy and 1 a Billroth I gastroduodenostomy 6 months to 18 yr before the onset of the neuromuscular disorder. Muscle weakness involved distal muscle groups in 4 patients and proximal muscle groups in 2. Five had visible muscle fasciculations. Deep tendon reflexes were hyperactive in 3, hypoactive in 2, and normal in 1 patient. Electromyography revealed neurogenic atrophy. Mild steatorrhea, low carotene levels, hypoalbuminemia, and poor vitamin $B_{12}$ absorption were most commonly encountered. Diabetes mellitus was found in 5 patients by i.v. glucose tolerance testing. The combination of malabsorption and diabetes mellitus may result in a deficiency of factor or factors necessary for the preservation of the neuromuscular complex.

### 5521 CIRCULATING ANTIBODIES IN GASTRITIS. *(E.)*

Varis, K. (2nd Dept. Med., U. Helsinki, Finland), K. Krohn, M. Isokoski and M. Siurala. *Acta Med Scand* 185(5):369-372, 1969.

Serum parietal cell and intrinsic factor antibodies were studied in 51 subjects including 8 with pernicious anemia. Parietal cell antibodies were found only in patients with atrophic gastritis (16 of 30) and mainly in those with complete or almost complete loss of parietal cells (14 of 20). Blocking intrinsic factor antibodies were present only in the latter group (8 of 20). Binding intrinsic factor antibodies were found only in 1 patient with complete loss of parietal cells. Parietal cell and intrinsic factor antibodies were found in patients with pernicious anemia (in resp. 6 and 4 of 8) as well as in patients with severe atrophic gastritis without pernicious anemia (in resp. 8 and 4 of 12). There was a good correlation between the results of the Schilling test and the occurrence of these antibodies. No correlation was observed between the severity of lymphocyte and plasma cell infiltration and the occurrence of parietal cell antibodies, whereas a reverse correlation was observed with the occurrence and the titer of intrinsic factor antibodies.

### 5522 SARCOMA OF THE STOMACH: A REVIEW OF 39 CASES. *(E.)*

Shepard, G. H. (Vanderbilt U. Hosp., Nashville, Tenn.), H. Burko and B. McSwain. *Southern Med J* 62(9):1064-1071, 1969.

A review was made of 39 patients with a diagnosis of primary gastric sarcoma. Lymphosarcoma was the diagnosis in 20 (51%) and leiomyosarcoma in 9 (23%). An attempt was made to differentiate sarcomas from carcinomas with the data available preoperatively. The leiomyosarcomas may be suspected with findings of anemia, palpable abdominal mass, and X-ray evidence of a discrete gastric mass in the absence of profound symptoms. The clinical data on patients with malignant lymphomas usually bear striking resemblances to those on patients with carcinoma. The long-term survival rate of patients with leiomyosarcoma (60% 5 yr survivors) is more favorable than that reported with other gastric malignancies. The survival rate in patients with malignant lymphoma is increased when X-ray treatment follows gastric resection. Thirty-one percent of those with malignant lymphomas survived 5 yr.

### 5523 A COMPARATIVE ELECTRON MICROSCOPIC STUDY OF A LEIOMYOSARCOMA AND BIZARRE LEIOMYOMA (LEIOMYOBLASTOMA) OF THE STOMACH. *(E.)*

Kay, S. (Med. Coll. Virginia, Richmond) and W. J. S. Still. *Amer J Clin Path* 52(4):403-413, 1969.

Two grossly similar neoplasms of the stomach were studied with the light and the electron microscope. They were diagnosed as well-differentiated leiomyosarcoma and leiomyoblastoma, resp. The leiomyosarcoma cells contained scanty myofibrils as compared with normal smooth muscle but exhibited a striking number of mitochondria. The cells of the leiomyoblastoma exhibited more myofibrils, and its vacuolar nature was confirmed. Some of the vacuoles appeared to represent degeneration of mitochondria, others were clearly derived from rough-surfaced endoplasmic reticulum, and still others might well represent light cells among darker elements.

5524 **A NEW CASE OF EOSINOPHILIC GRANULOMA OF THE STOMACH.** *(Fr.)* Benoit, M. (Roubaix Cent. Hosp., France), J. Devambez and C. Six. *Lille Med* 12(8):910-913, 1967.

5525 **POORLY CONSTRUCTED ANASTOMOSIS IN GASTRECTOMY. [CASE REPORT]** *(Rus.)* Pekerman, M. Ia. (Belgorod Regional Hosp., USSR). *Klin Khir (Kiev)* (7):43-44, 1967.

5526 **EVIDENCE FOR GASTRIC INTRINSIC FACTOR IN THE EEL *(ANGUILLA ROSTRATA).*** *(E.)* Kaplan, M. E. (Washington U. Sch. Med., St. Louis, Mo.) and A. Stein. *Proc Soc Exp Biol Med* 131(3):790-792, 1969.

5527 **BENIGN LYMPHOID HYPERPLASIA OF THE STOMACH SIMULATING GASTRIC MALIGNANCY. [CASE REPORT]** *(E.)* Eras, P. (New York Hosp.-Cornell Med. Ctr., N. Y.) and S. J. Winawer. *Amer J Dig Dis* 14(7):510-515, 1969.

5528 **THE SIGNIFICANCE OF THE STOMACH FOR THE ANTIPERNICIOUS PRINCIPLE IN THE LIVER OF PIGS. [CASE REPORT]** *(E.)* Petri, S. (Oresunds Hosp., Copenhagen, Denmark). *Acta Med Scand* 185(4):339-340, 1969.

5529 **THE STOMACH AND ANEMIA.** *(Rev.)(E.)* Callender, S. T. *Med Rev* 1(7):10-11, 1969.

5530 **ACUTE VOLVULUS OF THE STOMACH. [CASE REPORT]** *(E.)* Nadkarni, S. V. (Kasturba Med. Coll., Mangalore, South India), M. Srinivasan, H. D. C. Gowda and M. G. Patkar. *J Indian Med Ass* 52(2): 76-77, 1969.

5531 **RHABDOMYOMA OF THE STOMACH. REPORT OF A CASE.** *(E.)* Tuazon, R. (Booth Mem. Hosp., Flushing, N. Y.). *Amer J Clin Path* 52(1):37-41, 1969.

5532 **ERRONEOUS CLINICAL DIAGNOSIS AS THE CAUSE OF UNNECESSARY GASTRECTOMY. [CASE REPORT]** *(Rus.)* Rappoport, M. B. (2nd Kiev Munic. Hosp., USSR). *Klin Khir (Kiev)* (7):44-45, 1967.

5533 **STOMACH XANTHOFIBROMA. [CASE REPORT]** *(Ger.)* Kaufmann, F. (Pathol. Anatom. Inst. U. Vienna, Austria). *Zbl Allg Path* 110:144-149, 1967.

5534 **THE CLINICAL PICTURE OF RECURRING STOMACH CANCER.** *(Rus.)* Saienko, A. I. (Kirghiz Sci. Res. Inst. Oncol. Radiol., USSR). *Klin Khir (Kiev)* (8):16-18, 1967.

5535 **GASTRIC STENOSIS INDUCED BY CAUSTIC LIQUIDS.** *(It.)* Rossi, F. (Gen. Hosp., Bologna, Italy) and B. Tonelli. *Osped Ital Chir* 16(5):455-467, 1967.

5536 **COMBINED GASTRIC EPITHELIOMA AND LYMPHOID LEUKEMIA. [CASE REPORT]** *(Fr.)* Gérard, A., A. Dupont, M. Houcke and J. C. Paris. *Lille Med* 12(8):906-909, 1967.

5537 **PERITONEOSCOPIC SYMPTOMS OF STOMACH CANCER.** *(Rus.)* Nartsissov, T. V. (Kalinin Med. Inst., USSR). *Klin Khir (Kiev)* (8):19-21, 1967.

5538 **OBSERVATIONS OF SCHWANNOMAS OF THE LARGE GASTRIC TUBEROSITA. (RADIOLOGICAL CONTRIBUTION).** *(It.)* Smaltino, F. (Inst. Radiol., U. Naples, Italy), A. Gaudieri and E. Del Vecchio. *G Ital Chir* 23(5):793-802, 1967.

5539 **AFTEREFFECTS OF GASTRECTOMY FOR RETICULOSARCOMA IN THE CURVATURE OF THE STOMACH AND IN THE CARDIAC STOMACH. [CASE REPORT]** *(Rus.)* Margani, I. A. (Moscow Munic. Hosp. No. 30, USSR). *Klin Khir (Kiev)* (7):72-73, 1967.

5540 **A METHOD FOR DETERMINING STOMACH SECRETION INSUFFICIENCY IN CANCER AND CHRONIC GASTRITIS.** *(Rus.)* Geller, L. I. *Vopr Onkol* 13(9):104-105, 1967.

5541 **A CASE OF HEMANGIOFIBROMA IN THE GREATER OMENTUM.** *(It.)* Di Filippo, M. (Inst. Anat., U. Florence, Italy) and P. Gonnelli. *Arch De Vecchi Anat Pat* 49(1):277-288, 1967.

5542 **TELECOBALT TREATMENT OF MALIGNANT STOMACH NEOPLASMS.** *(It.)* Cossu, F. (Inst. Radiol., U. Cagliari, Italy) and A. Sannia. *Nunt Radiol* 33(Suppl.):537-544, 1967.

5543 **CLINICAL APPLICATION OF WAGENSTEEN'S METHOD OF GASTRIC COOLING.** *(E.)* Sorensen, F. H. (Dept. Surg., U. Arhus, Denmark) and K. Tophoj. *Acta Chir Scand* 133(5):399-402, 1967.

5544 **EOSINOPHILIC GRANULOMA OF THE STOMACH.** *(It.)* Nociti, V. (S. Gerardo Tintori Hosp., Monza, Italy) and M. Ricci. *Chirurgia* 22(5):281, 1967.

5545 **A CLINICAL STUDY OF AN ANTISEROTONIN IN DUMPING SYNDROME.** *(It.)* Pistacchi, E. (Gen. Surg. Clin., U. Pavia, Italy). *Chirurgia* 22(2):91-98, 1967.

5546 ISCHEMIC NECROSIS OF THE GASTRIC STUMP AFTER SUBTOTAL GASTRECTOMY. *(It.)* Kuntner, A. (Gen. Hosp. Milan, Italy) and A. Sartirana. *Chirurgia* 22(5):261-272, 1967.

5547 CANCER IN THE REMAINING STOMACH AFTER GASTRECTOMY FOR ULCER. *(Sp.)* Trossero, A. I., E. M. Facciuto, M. Roncoroni and V. M. Nocetti. *Bol Soc Cir Rosario* 34(8):377-386, 1967.

5548 ANTIPERISTALTIC JEJUNAL SEGMENT IN GASTRIC SURGERY. *(E.)* Hedenstedt, S. (Nacka Hosp., Sweden) and G. Lundquist. *Acta Chir Scand* 133(5):351-354, 1967.

5549 CLINICAL EXPERIENCES WITH SELECTIVE VAGOTOMY. *(E.)* Scheinin, T. M. (Dept. Surg., U. Turku, Finland) and M. V. Inberg. *Acta Chir Scand* 133(7): 533-537, 1967.

5550 STOMACH WALL METASTASIS. *(Ger.)* Seyss, R. (Neunkirchen Hosp., Austria). *Fortschr Roentgen* 107(3):427-428, 1967.

5551 GASTRIC CYST OF THE MEDIASTINUM. A DISTINCT CLINICOPATHOLOGICAL ENTITY. *(E.)* Chitale, A. R. (Med. Coll. Virginia, Richmond). *J Pediat* 75(1):104-110, 1969.

5552 THE SIGNIFICANCE OF THE STOMACH TO THE CENTRAL NERVOUS SYSTEM IN PIGS. *(E.)* Petri, S. (Oresund Hosp., Copenhagen, Denmark) and C. Petri. *Acta Med Scand* 185(5):453-457, 1969.

5553 BENIGN STOMACH TUMORS. *(Ger.)* Huegel, E. (Ctr. Intern. Med., Johann Wolfgang Goethe U., Frankfurt/M, Germany). *Radiologe* 9(8):257-264, 1969.

5554 ACUTE DILATATION OF THE STOMACH AFTER VAGOTOMY. [CASE REPORT] *(E.)* Tovey, F. I. (Holdsworth Mem. Hosp., Mysore City, India). *Brit J Surg* 56(6):449-452, 1969.

5555 GASTROJEJUNOCUTANEOUS FISTULA FOLLOWING POLYA GASTRECTOMY. [CASE REPORT] *(E.)* Rosenberg, M. (St. Thomas's Hosp., London) and J. Wellwood. *Brit J Surg* 56(6):461-463, 1969.

5556 PHLEGMONOUS GASTRITIS. *(Fr.)* Stocker, H. (Med. Therapeut. U. Clin., Geneva, Switzerland), J. de Freudenreich and A. Schusselé. *Schweiz Med Wschr* 99(37):1325-1328, 1969.

5557 GASTRIC TERATOMA IN A NEWBORN INFANT: TOTAL GASTRECTOMY WITH SURVIVAL. *(E.)* De Angelis, V. R. (Babylon, N. Y.). *Surgery* 66(4):794-797, 1969.

5558 MILK IN TREATMENT OF GASTRIC DISEASE. *(E.)* Piper, D. W. (Dept. Med., U. Sydney, Australia). *Amer J Clin Nutr* 22(2):191-195, 1969.

5559 SMOOTH MUSCLE TUMORS OF THE STOMACH. *(E.)* Crocker, D. W. (Harvard Med. Sch., Boston, Mass.). *Ann Surg* 170(2):239-243, 1969.

5560 GASTRIC CANCER. SOME RECENT IMPROVEMENTS IN DIAGNOSIS BASED UPON THE JAPANESE EXPERIENCE. *(Rev.)(E.)* Prolla, J. C. (Dept. Med., U. Chicago, Ill.), S. Kobayashi and J. B. Kirsner. *Arch Intern Med (Chicago)* 124(2):238-246, 1969.

5561 GASTRIC BIOPSY IN DIABETICS. *(Pol.)* Trief, H. (3rd Clin. Intern. Med., Warsaw Acad. Med., Poland), E. Waniewski and H. Lisiecka-Adamska. *Pol Tyg Lek* 23(12):413-416, 1968.

5562 INCARCERATED RETROSTERNAL DIAPHRAGMATIC HERNIA. *(Pol.)* Sobański, A. (Railroad Hosp., Olsztyn, Poland). *Wiad Lek* 21(6):479-481, 1968.

5563 THE GENETICS OF GASTRIC CARCINOMA. *(Fr.)* Dubarry, J.-J. (St. André Hosp., Bordeaux, France). *Presse Med* 76(17):793-796, 1968.

5564 ABO BLOOD GROUPS AND THE INCIDENCE OF GASTRIC CANCER, GASTRIC ULCER AND DUODENAL ULCER. *(Pol.)* Spruch, T. (1st Surg. Clin., Acad. Med., Lublin, Poland) and E. Dacka. *Pol Tyg Lek* 23(26):979-980, 1968.

5565 ACUTE VOLVULUS OF THE STOMACH. [CASE REPORT] *(E.)* Camblos, J. F. B. (Asheville, N. C.). *Amer Surg* 35(7):505-509, 1969.

5566 MASSIVE GASTRIC HEMORRHAGE SECONDARY TO RUPTURE OF MYCOTIC ANEURYSM OF THE SPLENIC ARTERY: RESECTION AND SURVIVAL. [CASE REPORT] *(E.)* Vansant, J. H. (Norfolk Gen. Hosp., Va.). *Amer Surg* 35(7):497-500, 1969.

5567 CARCINOMA OF THE STOMACH. ANALYSIS OF POST-OPERATIVE MORTALITY AND LONG-TERM SURVIVAL IN 200 SURGICALLY TREATED CASES. *(Cz.)* Hrbek, M. (Reg. Hosp., Ústí nad Labem, Czechoslovakia) and J. Vrabec. *Rozhl Chir* 47(1):31-36, 1968.

5568 POSTOPERATIVE ALKALINE REFLUX GASTRITIS. SURGICAL IMPLICATIONS. *(E.)* Van Heerden, J. A. (Mayo Clin., Rochester, Minn.), J. T. Priestley, G. M. Farrow and S. F. Phillips. *Amer J Surg* 118(3):427-433, 1969.

5569 GASTRODUODENAL BLEEDING DUE TO ASPIRIN: CLINICAL AND MEDICOLEGAL SIGNIFICANCE. *(E.)* Sagall, E. L. *Med Counterpoint* 1(4):22-27, 1969.

5570 GASTRIC ULCERATION FOLLOWING COBALT TELETHERAPY. ESTIMATION OF THE TOLERANCE DOSE. [CASE REPORT] *(E.)* Sylvén, B. (County Hosp., Örebro, Sweden), K. J. Vikterlöf and L. B. Schnürer. *Acta Radiol [Ther Physics Biol]* 8(3):183-188, 1969.

5571 INDICATIONS FOR TOTAL GASTRIC REPLACEMENT OPERATIONS. *(Rev.)(E.)* Herrington, J. L. Jr. (Edwards-Eve Clin. Assn., Nashville, Tenn.). *Surgery* 65(6):1013-1014, 1969.

5572 TORSION OF THE OMENTUM. *(Nor.)* Mohr, E. (Haukeland Hosp., Bergen, Norway). *T Norsk Laegeforen* 88(12):1095-1102, 1968.

5573 PERFORATING CANCER OF THE STOMACH. *(Rus.)* Samsonov, V. A. (Med. Sch., U. Petrozavodsk, USSR). *Khirurgiia (Moskva)* 44(11):23-28, 1968.

5574 SIGNIFICANCE OF TUMOR STRUCTURE FOR THE RESULTS OF THE SURGICAL TREATMENT OF STOMACH CANCER. *(Rus.)* Ageienko, I. A. (Kuban Med. Inst., Krasnodar, USSR). *Khirurgiia (Moskva)* 44(11):16-19, 1968.

5575 LYMPHOMA OF THE STOMACH: A REPORT OF TWO CASES WITH GASTROSCOPIC OBSERVATIONS. *(E.)* Ehrlich, A. N. (Cornell U. Med. Coll., New York, N. Y.). *Gastroint Endosc* 14(3):136-139, 1968.

5576 HEMORRHAGIC-EROSIVE GASTRITIS. *(E.)* Dagradi, A. E. (VA Hosp., Long Beach, Calif.), S. J. Stempien, E. R. Lee and G. Juler. *Gastroint Endosc* 14(3):147-150, 1968.

5577 NECROSIS OF THE STOMACH DISPLACED INTO THE THORAX. *(Pol.)* Nagay, B. (2nd Surg. Clin., Polish Acad. Med., Szczecin) and J. Semanycz. *Pol Przegl Chir* 40(3):257-258, 1968.

5578 TUBERCULOSIS OF THE STOMACH. *(Sp.)* Lucchini, A. (Van Buren Hosp., Valparaiso, Chile), J. Maturana, H. Apablaza, L. Medina and H. Aste. *Rev Med Valparaiso* 21(1):31-34, 1968.

5579 SURGERY FOR GASTRIC BURNS IN CHILDREN. *(Rus.)* Ierokhin, A. P. (Pirogov 2nd Moscow Med. Inst., USSR) and E. A. Stepanov. *Khirurgiia (Moskva)* 44(7):135-136, 1968.

5580 STUDIES OF THE PHOSPHORUS BALANCE IN PATIENTS WITH STOMACH CANCER. *(Pol.)* Oszacki, J. (Inst. Oncol., Krakow, Poland), A. Marczyńska, J. Kulpa and K. Szczygiel. *Nowotwory* 18(1):45-49, 1968.

5581 ATELECTASIS OF THE LUNG AFTER STOMACH RESECTION. [CASE REPORT] *(Ser.)* Kostić, D. (Isidor Perera Matić Military Hosp., Split, Yugoslavia) and M. Stevović. *Srpski Arh Celok Lek* 96(5):545-549, 1968.

5582 THE EXTENT OF THE PYLORIC GLAND AREA OF THE STOMACH. *(E.)* Kenny, P. J. (St. Vincent's Hosp., Sydney, Australia). *Med J Aust* 2(2):45-53, 1968.

5583 ASYMPTOMATIC MUCOSAL DIAPHRAGM OF THE GASTRIC ANTRUM: REPORT OF A CASE. *(E.)* Katz, L. A. (USAF Hosp., Maxwell Air Force Base Ala.). *Gastroint Endosc* 15(2):106-120, 1968.

5584 STOMACH CANCER IN SURGERY OF PRECANCEROUS POLYPS OF THE STOMACH. *(Fl.)* Goethals, C. (St. Rafaël, Louvain, Belgium). *T Geneesk* 24(7):396-399, 1968.

5585 GASTRIC LEIOMYOSARCOMA. *(Sp.)* Merino Peinado, A. (Milit. Hosp., Logroño, Spain). *Med Cir Guerra* 30(1):11-18, 1968.

5586 UNUSUAL GASTRIC LESIONS. CLINICAL FEATURES. *(E.)* Lukash, W. M. (Naval Hosp., Bethesda, Md.), D. K. Wentz and R. B. Johnson. *Arch Surg (Chicago)* 98(6):781-785, 1969.

5587 PYLORIC ANTRAL MEMBRANE. *(E.)* Halliday, J. P. (Dept. Surg., U. Sydney, Australia), T. Jelihovsky and D. Stephen. *Aust New Zeal J Surg* 37(4):363-365, 1968.

5588 PHYSIOLOGIC TRENDS IN MODERN GASTRIC SURGERY. *(Bul.)* Rumenov, I. (Racho Angelov Distr. Hosp., Sofia, Bulgaria). *Khirurgiia (Sofiia)* 21(2):111-115, 1968.

5589 TRANSPOSITION OF THE EFFERENT LOOP IN THE SURGICAL TREATMENT OF DUMPING SYNDROME. [CASE REPORT] *(It.)* Gaetini, A. (Inst. Surg. Anat., U. Turin, Italy) and M. Dei Poli. *Minerva Chir* 23(3):132-140, 1968.

5590 THE AMINO ACID CONTENT IN SERUM DURING ANACIDIC GASTRITIS. *(Rus.)* Turianitsa, S. M. (Dept. Ther., Uzhgorod State U., USSR). *Klin Med (Moskva)* 46(2):73-78, 1968.

5591 THE DEVELOPMENT OF STUDIES OF CHRONIC GASTRITIS IN 50 YEARS. *(Rus.)* Ryss, S. M. (Acad. Med. Sci. USSR, Leningrad). *Klin Med (Moskva)* 46(2):20-25, 1968.

5592 PERFORATING ULCERS IN THE GASTROINTESTINAL TRACT DURING CORTICOSTEROID THERAPY. *(Rus.)* Danovich, F. M. (O. V. Kuusinen Petrozavodsk U., USSR) and Ie. M. Gonoboblev. *Klin Med (Moskva)* 46(3):134-136, 1968.

5593 **A NEW ANASTOMOSIS TECHNIQUE TO PREVENT POSTGASTRECTOMY SYMPTOMS.** *(Turk.)* Uras, A. (Med. Fac., Istanbul U., Turkey) and A. Bozbora. *Tip Fak Mec* 31(3):428-437, 1968.

5594 **CONTRIBUTION TO THE PROBLEM OF VAGOTOMY.** *(Cz.)* Chocholáč, J. (Dept. Roentgenol., UVN, Prague, Czechoslovakia). *Rozhl Chir* 47(1):1-7, 1968.

See also: 5111,5129,5148,5155,5188,5202,5226,5241,5275,5411,5416,5423,5440,5450,5452,5455,5456,5475,5500,
5507,5513,5593,5656,5702,5093,5401

**5595** **HORMONAL STIMULATORY MECHANISM PRODUCING GASTRIC HYPERSECRETION FOLLOWING MASSIVE SMALL-INTESTINAL RESECTION.** *(E.)* Yakimets, W. W. (Dept. Surg., U. Alberta, Canada) and G. F. Bondar. *Canad J Surg* 12(2):241-244, 1969.

Heidenhain pouches were constructed in 4 dogs, drained through stainless steel cannulas into rubber balloons. After recovery, 24 hr Heidenhain pouch secretions were studied in the conscious dogs fasted or fed normally over 24 hr periods, then the small bowel was resected, leaving 2 feet of proximal jejunum and 1 foot of distal ileum. Intestinal continuity was reestablished using a one-layer, end-to-end anastomosis. After recovery and at least a week of diarrheal control, studies of 24 hr pre- and postprandial Heidenhain pouch secretions were repeated in these conscious, enterectomized dogs. Massive enterectomy increased the Heidenhain pouch secretion in fasting dogs and markedly increased postprandial pouch secretion. Complete diversion of thoracic-duct lymph in meat-fed dogs removed this hypersecretion. Reinfusion of diverted lymph increased pouch secretion. The production of a gastric secretagogue may be stimulated by massive enterectomy.

**5596** **METASTATIC MELANOMA IN THE SMALL BOWEL.** *(E.)* Macbeth, W. A. A. G. (U. Otago Med. Sch., Dunedin, New Zealand), J. F. Gwynne and M. G. Jamieson. *Aust New Zeal J Surg* 38(4):309-315, 1969.

Of seven instances of metastatic melanoma into the wall of small bowel, 5 were treated with resection and 2 were found at necropsy. Only 3 other cases of metastatic small bowel carcinoma were found during the same 14 yr review period. During this same time interval 117 new cases of skin melanoma were diagnosed. In 3 of the cases of melanoma metastatic in the small bowel no primary lesion was identified. In 2 asymptomatic melanoma deposits in the wall of the small intestine were noted at necropsy. In 4 there was evidence of melanoma elsewhere than in the gastrointestinal tract (subcutaneous nodules, 2, lymph node, 1, and local recurrence, 1). None of the patients were found to have liver involvement.

**5597** **MASSIVE RESECTION OF THE SMALL INTESTINE.** *(E.)* Chen, K.-M. (Coll. Med., Nat. Taiwan U., Taipei). *Surgery* 65(6):931-938, 1969.

The postoperative status and the nutritional and electrolyte changes were evaluated in 9 of 12 patients who had undergone massive (50-96%) resection of the jejunum and ileum. Five patients were living with normal nutrition 2-3 yr postoperatively. Diarrhea and rapid transit time were severe during the first 3 weeks after operation but diminished thereafter. High acidity of the stool was found in patients with the more extensive resections of small intestine. Hypokalemia was a greater problem than hypocalcemia. Carbohydrate absorption probably was diminished in some. Abnormal fecal losses of dietary fat were observed in those with the more extensive resections, especially those with loss of the terminal ileum and the ileocecal valve. Good nutrition was maintained in those with resection of up to 70% of the small bowel provided the terminal ileum and the ileocecal valve were retained; in the absence of these sections, nutrition was impaired by resections of 50-60% of the small bowel.

**5598** **PROTEOLYTIC ENZYMES OF HUMAN INTESTINAL MUCOSA IN NON-MALIGNANT DISEASES OF THE ILEUM AND COLON.** *(E.)* Goldberg, D. M. (Western Infirm., Glasgow, Scotland), R. A. McAllister and A. D. Roy. *Brit J Exp Path* 50(3):241-249, 1969.

Preparations of human mucosal epithelium were made from 10 samples of normal colon, 10 of normal ileum, 20 from colon involved with ulcerative colitis, 10 from ileum affected by regional ileitis, 4 from colon resected for diverticulitis, 2 from megacolon, and 2 from colonic polyps. The activity of proteolytic enzymes using hemoglobin as substrate and tissue nitrogen as reference was measured at 3.75 and 6.50 pH in homogenates, supernatants and particulate preparations befor and after treatment with detergent. In normal colon and ileu proteolytic activity at 3.75 pH was of similar magnitude and was mainly soluble; activity at 6.50 pH was greater in ileum, and in both tissues was mainly associated with particulate fractions. Samples from ulcerative colitis patients gave lower activities in all fractions at both pH values, the extent of the reduction being related to the severity of the disease. No evidence for a lysosomal defect was obtained. Samples affected by regional ileitis did not differ from normal ileum in proteolytic activity at 3.75 pH but values at pH 6.50 tended to be lower. At both pH values a higher percentage of the total activity was soluble before treatment with detergent which solubilized little additional enzyme—this may indicate a lysosomal defect. Diverticulitis samples had lower activity at 3.75 pH, but did not differ from normal colon at 6.50 pH. No striking abnormalities were noted in megacolon or colonic polyps.

**5599** **STATISTICAL OBSERVATION OF ILEOCECAL INTUSSUCEPTION.** *(E.)* Suh, J. H. (Yonsei U. Coll. Med., Seoul, Korea), B. S. Choi and S. B. Ar *Yonsei Med J* 9(2):121-126, 1968.

Sixty-three cases of intussusception were treated during a 4 y period; 44 cases were under 1 yr (69.9%) and peak incidence occurred from the 4th to 7th month (38%); males showed a decidedly higher incidence than females with a ratio of 2.3:1; 33.3% occurred in the summer. Symptoms and signs include irritability or abdominal pain, palpable abdominal mass, vomiting, and bloody mucous stools. Seven out of 63 cases had an underlying cause; Meckel's diverticulum 2, enteric cyst 1, submucosal cyst 1, lymphosarcoma 1, reticulum cell sarcoma 1, and malrotation, and 5 cases out of 6 were under 3 yr. Of 63 cases, operative intervention without trial of barium enema reduction was used in 24 cases, 7 cases had only diagnostic barium enema. In the 32 other cases, hydrostatic pressure barium enema was performed and successful reduction was accomplished in 13 (40.6%) cases. No recurrences were note in any case but the follow-up was short. There was no complication from the barium enemas. Gangrene of the bowel was noted in 10 cases of over 24 hr duration. One patient died before surgical intervention was possible.

**5600** **ANALYSIS OF SMALL BOWEL BIOPSIES. A CLINICAL AND HISTOPATHOLOGICAL CORRELATION.** *(E.)* Chung, M. H. (Yonsei U. Coll. Med., Seoul, Korea). *Yonsei Med J* 9(2):105-115, 1968.

The clinical diagnoses of 300 patients studied by 359 jejunal biopsies included nontropical sprue, 120 patients with 179 biopsies; normal controls, 22; irritable bowel syndrome 17; steatorrhea of unknown cause 14; gastrectomy 14; regional enteritis 11; diarrhea of unknown cause 7; lactase deficiency 6; hypogammaglobulinemia 6; chronic pancreatic deficiency 5; Whipple's disease 5; lymphoma 5; diabetic diarrhea 5; amyloidosis 4; and miscellaneous 59. Eighty-nine of 99 untreated patients (89%) and 42 of 80 treated patients (52%) had abnormal surface epithelium on biopsy. In both groups the majority of patients with grade 2 and all patients with grade 3 changes showed abnormal surface epithelium, whereas the majority of patients with grade 1 and all of those with grade 0 had normal surface epithelium. Of the 179 nontropical sprue patients' slides, 48 had normal surface epithelium (38 had been treated, 10 had not). All 5 patients with grade 0 had been treated. Of a total 359 biopsies there were 17 who had grade 2 changes and normal surface epithelium (11 of the 17 had nontropical sprue and 8 of them had been treated). Abnormal surface epithelium was present in 140 patients (131 nontropical sprue, 9 other diseases). An abnormal brush border was seen in 113 patients (105 nontropical sprue, 8 other diseases). Cytoplasmic basophilia was observed in 108 patients (101 nontropical sprue, 7 other diseases). Flat mucosal surface classified as grade 3 was seen in 73 patients (all nontropical sprue.)

### 5601 THE PATHOLOGICAL MORPHOLOGY OF THE INTESTINE, ITS INTRAMURAL NERVOUS APPARATUS, AND THE SOLAR PLEXUS IN ACUTE INTESTINAL OBSTRUCTION IN PREGNANT RABBITS. *(Rus.)*

Vakhidov, Sh. (Katta-Kurgan Munic. Med. Association, USSR) and E. S. Prigozhin. *Med Zh Uzbek* (11):27-30, 1968.

Acute intestinal obstructions were experimentally induced in pregnant (24th-28th day of gestation) and nonpregnant rabbits. (Neither the method of producing obstruction nor the site of the obstruction is specified). The proximal part of the intestine was most severely affected in pregnant animals. The longer the duration of the obstruction, the more severe were the histological changes. Destructive changes in the wall of the intestine, solar plexus, and adrenals were more severe in pregnant rabbits than in nonpregnant controls. The greater severity of these changes is attributed to toxemia which was one of the principal causes of death.

### 5602 SMALL INTESTINAL FUNCTION IN NEOPLASTIC DISEASE.

*(E.)* Dymock, I. W. (U. Stobhill Gen. Hosp., Glasgow, Scotland), N. MacKay, V. Miller, T. J. Thomson, B. Gray, E. H. Kennedy and J. F. Adams. *Brit J Cancer* 21(3):505-511, 1967.

Small intestine function was assessed in 26 patients (16 male and 10 female, 32-80 yr) suffering from malignant disease (bronchus 10, stomach 6, reticuloendothelial 3, prostate 2, colon 1, brain 1, kidney 1, breast 1, and myelofibrosis 1). Abnormal results were obtained in the xylose absorption test (12 of 24), stool fat excretion (5 of 13), histidine metabolite excretion (8 of 10), Schilling test (5 of 16), BSP retention (7 of 24) and FIGLU and urocanic acid studies (17 of 24) in a significant number of patients. Villous atrophy in the jejunum was observed in all 8 patients biopsied. Impaired small intestine function of a nonspecific type may occur in malignant disease processes arising outside the alimentary tract.

### 5603 MORPHOLOGY AND ABSORPTIVE CAPACITY OF THE ILEUM AFTER ILEOSTOMY IN MAN.

*(E.)* Wright, H. K. (Yale U. Sch. Med., New Haven, Conn.), J. C. Cleveland, M. D. Tilson and T. Herskovic. *Amer J Surg* 117(2):242-245, 1969.

Studies of ileal water absorption were carried out in 6 patients 2 weeks and 4 months after total colectomy and ileostomy for ulcerative colitis and in 6 patients without intestinal disease. The normal subjects were intubated with a triple lumen polyvinyl tube positioned fluoroscopically in the distal ileum. A double lumen tube was positioned in the distal ileum through the stoma in the ileostomy patients. The initial diarrhea observed in a new ileostomy is caused at least in part by loss of absorptive capacity in the distal ileum and the adaptation over the next several months is caused primarily by a return of ileal absorptive capacity to normal. Ileal mucosal biopsy specimens obtained from the ileostomy patients after each absorptive study showed mucosal hyperplasia and hyperabsorption 4 months after ileostomy. This suggests that part of the adaptation may involve an increase in ileal absorptive capacity above normal.

### 5604 CLINICAL APPRAISAL OF JEJUNOILEAL SHUNT IN PATIENTS WITH MORBID OBESITY.

*(E.)* Scott, H. W. (Vanderbilt U. Med. Ctr., Nashville, Tenn.) and D. H. Law IV. *Amer J Surg* 117(2):246-253, 1969.

Five patients were found who met the following criteria: massive obesity (weights 2-3 times ideal levels) of at least 5 yr duration; failure of dietary efforts for 3 yr; apparent incapability to adhere to prescribed diets or exercises; no correctible endocrinopathies which might be causal; no unrelated disease which might increase operative risk; presence of certain complications (adult onset diabetes, Pickwickian syndrome, hypertension) which might be alleviated by significant weight reduction; and assurance of cooperation of the patient in follow-up. There were 3 women and 2 men, aged 23-47. Two weighed in the 350 pound range and the other 3 in the range of 475-618 pounds. Metabolic, cardiopulmonary, psychiatric evaluation, and body composition studies were carried out. Extensive distal intestinal bypass with preservation of the ileocecal valve was carried out. Three patients had healing of the large abdominal wound per primum and without evidence of seroma or infection. Major infections developed in 2 patients, requiring drainage and delaying convalescence. Tight stay sutures caused extensive lacerations of the skin and subcutaneous tissue. Diarrhea became severe in the postoperative period with increased oral intake. Low fat diet, restriction of fluids with meals, and diphenoxylate hydrochloride (5 mg 3-4 times a day) resulted in considerable improvement while the patients were still in the hospital. Three of five have returned to full time work, 1 who was incapacitated by obesity has undertaken a career in nursing, and 1 is seeking employment 3 months after surgery. Each of the 3 females has been found (6-12 months postoperatively) to have an enlarged liver. Liver function tests were within normal limits except for BSP retention of 6-29%. Needle aspiration biopsy revealed marked fatty metamorphosis of the liver. Three had a good result with significant weight loss; one a fair result with attacks of severe diarrhea; and the fifth a poor result with persistent and uncontrollable diarrhea and anal irritation requiring rehospitalizations. This last patient had a history of alcoholism and irritable colon.

5605 **WATER AND SODIUM ABSORPTION BY THE INTESTINE IN CHOLERA.** *(E.)* Love, A. H. G. (Dept. Med., Queen's U., Belfast, Ireland). *Gut* 10(1):63-67, 1969.

Isolated loops of rabbit jejunum, 8-10 cm in length, were constructed leaving their blood supply intact on the mesenteric pedicle. The ends of the loops were cannulated to allow fluids to be introduced and removed. The continuity of the remaining small intestine was reestablished, the loops replaced in the abdominal cavity, and the midline incision closed around the cannulae. Two loops were prepared in each rabbit. Studies either began immediately with the rabbits exposed to toxins or an inoculum of vibrio was made into 1 of the loops to be studied later. Freshly prepared culture of vibrio was placed in 1 and a similar volume of the same material heated to 80C for 30 min in the other. The cephalic and caudal loops were used alternately as controls. In other studies the loop was exposed to cholera toxin. Cholera filtrate after Seitz-filtering stools from 2 cholera patients was also inoculated. Water and sodium transport was studied in the loops. The accumulation of luminal fluid similar to cholera stool in man was observed. The net sodium content was accounted for by an increase in plasma-to-lumen unidirectional ionic flux. Simultaneous glucose absorption enhanced the latter flux and could result in net sodium absorption. There seems to be increased mucosal cell permeability rather than sodium pump inhibition.

5606 **INTESTINAL OBSTRUCTION DUE TO I.U.C.D.** *(E.)* Albertazzi, V. J. (Sacremento Gen. Hosp., Calif.) and T. E. Elliott. *J Abdom Surg* 11(7):161-163, 1969.

5607 **RUPTURED ANEURYSM OF JEJUNUM WITH MASSIVE INTESTINAL BLEEDING. [CASE REPORT]** *(E.)* Gueco, J. M. (Middlesex Gen. Hosp., New Brunswick, N. J.), N. Rosenberg, J. T. Hart and D. W. Smith. *Amer Surg* 35(9):643-647, 1969.

5608 **PYLORODUODENAL OBSTRUCTION DUE TO CARCINOMA OF THE GALLBLADDER. [CASE REPORT]** *(E.)* Friedman, I. H. (Beth Israel Med. Ctr., New York, N. Y.), G. Mehler and L. Ginzburg. *Amer J Gastroent* 52(3):224-230, 1969.

5609 **CHRONIC "HODGKIN" ULCER OF THE JEJUNUM. [CASE REPORT]** *(Fr.)* Mosimann, R. (Surg. Clin., U. Lausanne, Switzerland). *Helv Chir Acta* 36(1/2):21-25, 1969.

5610 **CARCINOID TUMOR OF MECKEL'S DIVERTICULUM. CARCINOID SYNDROME CHARACTERIZED BY PREDOMINANT RESPIRATORY MANIFESTATIONS. [CASE REPORT]** *(E.)* Letac, B. (Boucicaut Hosp., Paris, France), B. Varet and Y. Grosgogeat. *JAMA* 209(1):109-111, 1969.

5611 **HEREDITY OF DUODENAL DIVERTICULUM.** *(Fl.)* Goeminne, L. (Zulte, Belgium). *T Geneesk* 25(6):322-324, 1969.

5612 **SUBTOTAL INTESTINE RESECTION.** *(Ger.)* Kuffer, F. (U. Child. Clin., Bern, Switzerland) and J. Laissue. *Z Kinderchir* 7(2):214-222, 1969.

5613 **NEONATAL VOLVULUS AND BILATERAL INTESTINE RESECTION. [CASE REPORT]** *(Ger.)* Hasse, W. (Surg. Clin., Free U. Berlin, Germany). *Z Kinderchir* 7(2):289-291, 1969.

5614 **MECKEL'S DIVERTICULUM WITH BLEEDING IN ADULTS. [CASE REPORT]** *(Nor.)* Ro, J. S. *T Norsk Laegeforen* 89(13):1088-1089, 1969.

5615 **MULTIPLE ATRESIA BY ILEAL AND COLONIC SEPTA: CASE REPORT.** *(E.)* Smith, E. D. (Royal Child. Hosp., Melbourne, Australia). *Aust N Zeal J Surg* 38(4):321-323, 1969.

5616 **CARCINOMA OF THE SMALL INTESTINE.** *(Fl.)* Hazenberg, K. (Apeldoorn, Netherlands). *T Gastroent* 12(1):52-57, 1969.

5617 **MECHANICAL SMALL BOWEL OBSTRUCTION CAUSED BY ACUTE APPENDICITIS.** *(E.)* Gupta, S. (Coll. Med. Sci. Baneras Hindu U., India) and M. P. Vaidya. *Amer Surg* 35(9):670-674, 1969.

5618 **VILLOUS ADENOMA OF THE DUODENUM: REPORT OF A CASE WITH MASSIVE HEMORRHAGE.** *(E.)* Makkar, J. (VA Hosp., Dayton, Ohio), K. T. Song and C. L. Cogbill. *Amer Surg* 35(9):656-659, 1969.

5619 **INTERPOSITION OF ILEUM AS ADJUNCT IN ABDOMINOPERINEAL PULL-THROUGH PROCEDURE.** *(E.)* Hampton, J. M. (Houston, Texas). *Southern Med J* 62(7):784-789, 1969.

5620 **TRANSLUMINAL REPAIR OF INJURIES OF THE MEDIAL WALL OF THE DESCENDING DUODENUM. [CASE REPORT]** *(E.)* Richter, R. M. (Downstate Med. Ctr., Brooklyn, N. Y.), W. S. Calem and B. S. Levowitz. *Arch Surg (Chicago)* 98(5):652-653, 1969.

5621 **PRIMARY MALIGNANT TUMORS OF THE SMALL BOWEL.** *(E.)* Sethi, G. (U. Kansas Med. Ctr., Kansas City) and C. A. Hardin. *Arch Surg (Chicago)* 98(5):659-661, 1969.

5622 **RETROPERITONEAL RUPTURE OF THE DUODENUM: REPORT OF A CASE UNDERGOING SUCCESSFUL SECONDARY REPAIR.** *(E.)* Espinosa, J. (Mount Sinai Hosp. Cleveland, Ohio) and C. Marks. *Amer Surg* 35(5):35(5):366-368, 1969.

5623 **ANTICIPATING MECONIUM PERITONITIS FROM METAPHYSEAL BANDS.** *(E.)* Wolfson, J. J. (Dept. Radiol., U. Minnesota, Minn..) and R. R. Engle. *Radiology* 92(5):1055-1060, 1969.

5624 INTERNAL HERNIA THROUGH MESENTERIC AND MESOCOLIC DEFECTS. A REVIEW OF THE LITERATURE AND A REPORT OF TWO CASES. *(E.)* Bertelsen, S. (Copenhagen County Hosp., Gentofte, Denmark) and J. Christiansen. *Acta Chir Scand* 133(5):426-428, 1967.

5625 ARTERIAL-MESENTERIC DUODENAL OBSTRUCTION. *(Ger.)* Schmid, F. (Munic. Child. Clin., Aschaffenburg, Germany). *Fortschr Med* 85(22):950-952, 1967.

5626 DIAGNOSIS OF TUMORS IN THE SMALL INTESTINE. *(Ger.)* Maerz, E. (Nordwest Hosp., Frankfurt/M, Germany) and H. Becker. *Fortschr Med* 85(21):919-924, 1967.

5627 CLINICAL APPLICATION OF ISOPERISTALTIC AND ANTIPERISTALTIC JEJUNUM TRANSPLANTATION. *(Dan.)* Amdrup, E. (Munic. Hosp., Copenhagen, Denmark), B. Kortholm and B. Hvidberg. *Nord Med* 78(46):1501-1507, 1967.

5628 RESULTS OF MASSIVE SMALL INTESTINE RESECTION AND THE NATURE OF THE INTESTINAL ANASTOMOSIS. *(Rus.)* El'kin, M. A. (25 October Leningrad Hosp., USSR). *Klin Khir (Kiev)* (8):41-43, 1967.

5629 CHRONIC OBSTRUCTION OF THE SMALL INTESTINE CAUSED BY RARE PATHOLOGICAL PROCESSES. *(Rus.)* Al'tshul', A. S. (Orenburg Med. Inst., USSR). *Klin Khir (Kiev)* (8):37-41, 1967.

5630 SMALL INTESTINE SARCOMAS. A STUDY OF 8 CASES. *(Fr.)* Combemale, B. (Munic. Hosp., Lille, France), L. Le Barzic and G. Lagache. *Lille Med* 12(8):945-947, 1967.

5631 OBTURATOR HERNIA. *(Ger.)* Beyer, U. (Dist. Hosp., Dresden, Germany). *Z Aerztl Fortbild (Jena)* 62(5):260-262, 1968.

5632 SURGICAL THERAPY FOR RADIATION ENTERITIS. *(E.)* Mason, G. R. (Stanford U. Sch. Med., Palo Alto, Calif.), J. M. Guernsey, G. E. Hanks and T. S. Nelsen. *Oncology* 22(4):241-257, 1968.

5633 JEJUNAL BIOPSY MODIFIED FOR PEDIATRIC USE. *(E.)* James, W. P. T. (U. West Indies, Kingston, Jamaica). *Lancet* 1(7546):795-796, 1968.

5634 BILE-SALTS AFTER ILEAL RESECTION. *(E.)* Heaton, K. W. (Dept. Med., U. Bristol, England). *Lancet* 1(7551):1093, 1968.

5635 A CASE OF RETROPERITONEAL RUPTURE OF THE DUODENUM. *(Dut.)* Nijenhuis, W. (Binnen Hosp., Amsterdam, Netherlands). *Nederl T Geneesk* 112(1):16-18, 1968.

5636 A CONTRIBUTION TO THE PROBLEM OF DUODENAL-COLON FISTULAS. *(Ger.)* Radeck, R. (U. Surg. Clin., Heidelberg, Germany) and J. Voll. *Roentgenblat* 22(7):353-358, 1969.

5637 JEJUNOILEOSTOMY FOR OBESITY. *(E.)* Jensen, H. E. (Munic. Hosp., Copenhagen, Denmark). *Acta Chir Scand* Suppl.(396):98-105, 1969.

5638 INTESTINAL MOTILITY WITH STENOSAL DISEASES IN THE SMALL INTESTINE. [CASE REPORT] *(Dan.)* Banke, A. L. *Ugeskr Laeg* 130(26):505-506, 1968.

5639 ADENOCARCINOMA OF BAUHIN'S VALVE. *(Fr.)* Roux, M. (Vaugirard Hosp., Paris, France), P. Vayre, L. Marie and P. Delavierre. *Presse Med* 76(15):727, 1968.

5640 ACUTE SEGMENTAL ILEITIS (ILEITIS ACUTA NON-TERMINALIS). *(Pol.)* Kuniewicz, Z. (Munic. Hosp., Gliwice, Poland) and M. Baran. *Pol Tyg Lek* 23(21):794-795, 1968.

5641 RADIOLOGICAL DIAGNOSIS OF PRIMARY CANCER OF THE DUODENUM. *(Rus.)* Nemesh, V. V. (Cent. Inst. Postgrad. Med., Moscow, USSR), V. E. Gel'shtein and M. M. Zhislina. *Klin Med (Moskva)* 46(2):131-138, 1968.

5642 DUODENOJEJUNAL STENOSIS CAUSED BY INTERNAL INTESTINAL HERNIA DUE TO A DEFECTIVE MESENTERY. *(It.)* Cugini, A. (Inst. Radiol., U. Turin, Italy). *Minerva Chir* 23(2):80-87, 1968.

5643 A CASE OF ADENOMA IN THE 3RD PORTION OF THE DUODENUM. *(It.)* Sordo, S. (S. Gerardo Tintori Hosp., Monza, Italy) and U. Tarter. *Chirurgia* 22(5):288-292, 1967.

5644 INTESTINAL OBSTRUCTION BY VEGETABLE FIBERS. [CASE REPORT] *(It.)* Porta, G. C. (S. Gerardo Tintori Hosp., Monza, Italy) and M. Ricci. *Chirurgia* 22(5):284-285, 1967.

5645 A CASE OF DOUBLE FISTULA, ILEO-CECAL-SIGMOID AND RECTO-VESICULAR, HAVING INFLAMMATORY ORIGINS. *(It.)* Esposti, M. D. (Ca Granda Gen. Hosp., Milan, Italy) and U. Dossena. *Chirurgia* 22(4):204-211, 1967.

5646 THREE CASES OF ASCARIS LUMBRICOIDES SMALL BOWEL OBSTRUCTION WITH VOLVULUS. *(E.)* Roe, T. N. C. (Kluang Dist. Hosp., Johore, Malaya), K. Lal and W. A. Cawkell. *Med J Malaya* 23(1):78-79, 1968.

5647 PRIMARY AORTO-DUODENAL FISTULA. *(E.)* Bindie, R. J. (Germantown Hosp., Philadelphia, Pa.). *J Germantown Hosp* 9(2):56-63, 1968.

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5648 **CONSTRICTION OF A LITTRÉ HERNIA (DIVERTICULAR HERNIA).** *(Rus.)* Syrnikov, N. G. (Saratov Med. Inst., USSR). *Khirurgiia (Moskva)* 44(11):118, 1968.

5649 **ON THE ROLE OF THE ILEAL EPITHELIUM IN THE PATHOGENESIS OF EXPERIMENTAL CHOLERA.** *(E.)* Norris, H. T. (Harvard Med. Sch., Boston, Mass.) and G. Majno. *Amer J Path* 53(2):263-275, 1968.

5650 **A CASE OF SMALL INTESTINAL CARCINOMA DEVELOPING ON THE BASIS OF CHRONIC ENTERITIS AND PRODUCING SYMPTOMS TYPICAL OF TERMINAL ILEITIS.** *(Hun.)* Pásztor, M. (Surg. Clin., U. Med. Sci., Budapest, Hungary) and K. Szentágothai. *Magy Sebesz* 21(6):393-395, 1968.

5651 **A CASE OF INTESTINAL CARCINOID WITH THE SYMPTOMS OF OBSTRUCTION.** *(Fr.)* Pailler, J. L., R. Tingaud, C. Masse, J. Videau, J. Magendie, J. P. Fournier and B. Gicquel. *Bordeaux Chir* (2):91-94, 1968.

5652 **DIAGNOSTIC PROBLEMS IN A CASE OF LEIOMYOMA OF THE INTESTINE.** *(Sp.)* Kern, F. A. (Garcia Morato Sanitorium, Seville, Spain), F. Aguilar Cortes, D. Borrero Cuenco and J. L. Lopez Campos. *Rev Esp Enferm Apar Dig* 27(7):1041-1048, 1968.

5653 **PLASMACYTOMA OF THE SMALL INTESTINE.** *(Pol.)* Bednarek, T. H. (Munic. Hosp., Wielun, Poland). *Pol Przegl Chir* 40(4):347-348, 1968.

5654 **INTESTINAL INFARCTION.** *(Sp.)* de Ustaran Viana, J. M. (Fac. Med., Natl. U. Litoral, Rosario, Argentina), H. Greco and E. Velayos. *Rev Argent Cir* 14(3/4): 81-82, 1968.

5655 **SIMPLE LEIOMYOMA OF THE SMALL INTESTINE.** *(Sp.)* Vila Arenas, R. (Gen. Surg. Clin., S.O.E., Seville, Spain). *Rev Esp Enferm Apar Dig* 27(3):470-476, 1968.

5656 **TRANSPLANTATION OF THE EFFERENT LOOP INTO THE DUODENUM IN THE DUMPING SYNDROME.** *(Sp.)* Palma, F. (Prov. Hosp., Jaén, Spain). *Rev Esp Enferm Apar Dig* 27(3):477-486, 1968.

5657 **VIII NATIONAL CONGRESS OF INTERNAL MEDICINE: A RESUME OF THE PAPERS CONCERNING PATHOLOGY OF THE SMALL INTESTINE.** *(Sp.)* Vilar Bonet, J. *Rev Esp Enferm Apar Dig* 27(9):1359-1384, 1968.

5658 **TWO MALIGNANT DEGENERATED DUODENA PAPILLOMAS. 10- AND 14-YEAR SURVIVALS AFTER DUODENOPANCREATECTOMY.** *(Ger.)* Deucher, F. (Cantonal Hosp., Aarau, Switzerland) and K. J. Villiger. *Schweiz Med Wschr* 98(46):1822-1825, 1968.

5659 **SPONTANEOUS RUPTURE OF THE DUODENUM AND A METHOD FOR REPAIRING THE DEFECT.** *(Rus.)* Eksharov, G. P. (34th Clin. Emergency Hosp., Novosibirsk, USSR). *Khirurgiia (Moskva)* 44(3):143-145, 1968.

See also: 5191,5193,5204,5205,5241,5395,5420,5446,5488,5569

5660 THE PROGNOSIS OF THE PERFORATED ACUTE DUODENAL ULCER. *(E.)* Cassell, P. (Royal Berkshire Hosp., Reading, England). *Gut* 10(7):572-574, 1969.

The management and follow-up of 294 patients with perforated duodenal ulcer (299 times) during a 10-yr period showed 73 (24.8%) with acute and 221 with chronic ulcer. The male to female ratio was approximately 6:1 in both groups. The peak incidence for perforation of chronic ulcers was between 51 and 60 yr. For acute ulcers it was spread out through the ages of 30 to 70. The operative mortality in those with acute lesions was 5.4% (4 patients). Only 2 of 10 patients had definitive procedures initially. There were 225 perforations in the 221 patients with chronic ulcers and 12 operative deaths (5.5%). Fifty patients had definitive procedures at the time of perforation.

5661 A POSSIBLE DUAL CONTROL MECHANISM IN THE ORIGIN OF PEPTIC ULCER. A STUDY ON ULCER LOCATION AS AFFECTED BY MUCOSA AND MUSCULATURE. *(E.)* Oi, M. (Jikei U. Sch. Med., Tokyo, Japan), Y. Ito, F. Kumagai, K. Yoshida, Y. Tanaka, K. Yoshikawa, O. Miho and M. Kijima. *Gastroenterology* 57(3): 280-293, 1969.

In study I, 855 peptic ulcers were found in a group of 640 gastric specimens obtained surgically. The locations of these ulcers were observed in their relation to mucosae. Nearly all ulcers were located adjacent to a mucosal boundary and on the side of the boundary opposite the fundic gland area. In study II, 269 ulcers in another group of 211 gastric specimens were similarly obtained and examined. Nearly all ulcers were located within identifiable special muscular areas. In study III, using transparent cellophane overlays, the locations of the 269 ulcers of study II were observed in their relation to both musculature and mucosae. The locations of nearly all ulcers were seemingly affected or controlled by both mucosal boundaries and muscle bundles. This dual effect or influence of the mucosae and musculature has been designated "dual control mechanism." Finally, by means of the concept of dual control mechanism an attempt speculatively has been made to explain the significance of the local pathogenic factor of peptic ulceration, a possible reason for the chronicity and single development of peptic ulcers, and the reason why gastric ulcers frequently appear at the gastric angulus of the lesser curvature of the stomach.

5662 DUODENAL pH VALUES IN NORMAL CONTROLS AND IN PATIENTS WITH DUODENAL ULCER. *(E.)* Rune, S. J. (Rigshospitalet, Copenhagen, Denmark) and K. Viskum. *Gut* 10(7):569-571, 1969.

Eight normal adult male subjects and 9 adult male patients with duodenal ulcer were studied. Gastric secretory capacity was the same in both groups. A pH electrode was placed 6 to 8 cm distal to the pylorus, as judged from a combination of frequent fluoroscopic controls and continuous registration of the potential difference across the pylorus. In the fasting state the mean pH was 6.3 in both groups. After a meal of chopped meat it fell to values around 5.3; no significant difference was found between the 2 groups. Duodenal ulcer is not related to an insufficient capacity for neutralization in the duodenum.

5663 ULCERATION OF ORAL AND GASTRIC MUCOSA PRODUCED BY STRESS IN RATS. *(E.)* Wilson, T. R. (U. Med. Sch., Manchester, England) and D. K. Whittaker. *Scand J Gastroent* 4(1):17-24, 1969.

Sixty-four male and 64 female Sprague-Dawley rats were divided into 4 groups of 16 male and 16 female rats with 8 control and 8 experimental animals in each group. Each group was subjected to experiment at successive weekly intervals when their weights were 100, 140, 180, and 220 g. Stress was produced by anesthetizing the rat with ether, binding it with a plaster of Paris bandage (2" x 4'6") extending from the base of the thorax to the hind legs making them immobile. Movement of the front legs was unrestricted. Control rats had no restraint bandages. After 24 hr restraint the animals were killed with ether, the abdomen incised, the stomach removed and the severity of gastric ulceration assessed by macroscopic examination under transmitted light, when ulcers appear as white spots or lines as bright as the forestomach. Oral ulcers were also assessed and histological confirmation obtained in a sample of 12. At 100 g body weight 3 male and 5 female animals had gastric ulcers in the stressed group while 1 male and 2 female controls had ulcers. At 140 g the stressed rats had 6 gastric ulcers (3 male, 3 female) and the controls 2 (1 male, 1 female). At 220 g body weight only 2 (1 male, 1 female) stressed animals had gastric ulcers while only 1 female control had an ulcer. Increase in the age of the animals was accompanied by progressively fewer ulcers. Oral ulcers increased slightly with increasing age in the stressed animals. The control animals showed a decreasing susceptibility with increasing age to both kinds of ulcers. Gastric ulcers occurred only in the glandular portion of the stomach. Oral ulcers were distributed on the lip, tongue and palate to significantly different extents. A difference in ulcer incidence between the sexes was not noted, in contrast to observations in human subjects. Gastric ulcers may be produced by a combination of vascular and acidity disturbances: oral ulcers by a direct trauma to the mucosa.

5664 GASTROENTEROSTOMY AND VAGOTOMY FOR CHRONIC DUODENAL ULCER. *(E.)* Dellipiani, A. W. (Dept. Therapeutics, U. Edinburgh, Scotland), I. B. Macleod, J. W. W. Thomson and A. A. Shivas. *Gut* 10(5):366-374, 1969.

Studies were made of 151 patients (112 men and 39 women) subjected to gastroenterostomy and vagotomy for chronic duodenal ulceration. A group of these patients were subjected to detailed metabolic studies. The operation was associated with a high incidence of undesirable sequelae. Clinical assessment of the patients 5 or more yr postoperatively showed that 39% were completely symptom free; in 11.4% the operation was regarded as a failure because of recurrent or stomal ulcer, severe dumping, diarrhea or vomiting. The weight of the majority remained stable or increased. Folic acid deficiency and gastric atrophy did not occur. Steatorrhea developed in

8 patients, one of whom developed impaired Vitamin $B_{12}$ absorption which was improved by antibiotics but not by intrinsic factor. A policy of selective surgery should be followed when managing patients with chronic duodenal ulcer. The lesser gastric procedures are followed by less serious metabolic side effects, and, provided the risk of stomal ulceration is kept at a minimum by suitable selection of patients, the overall results of surgery might be improved.

**5665** **DIGESTION AND ABSORPTION OF FATS IN PATIENTS OPERATED ON FOR GASTRODUODENAL ULCER.** *(Por.)* Rosenberg, D. (Fac. Med., U. Campinas, Brazil), F. Secaf, N. de Carvalho and L. R. Aratangy. *Arq Gastroent* 6(2):69-76, 1969.

The triolein $^{131}$I test in 62 patients operated for chronic gastroduodenal ulcer showed in 96.8% a fecal excretion of more than 4%. The oleic acid $^{131}$I test in 44 patients showed abnormal absorption in 90.9%. Steatorrhea was similar in incidence and was independent of the time after surgery. After antibiotic treatment the fecal excretion remained above 4% in 88.6%. After pancreatin administration (10 capsules containing 0.175 g with 0.025 g bile salts each) the $^{131}$I oleic acid test in 32 patients showed persistence of steatorrhea in 93.7%; the findings were independent of the sex of the patient, time after surgery, and surgical technique employed (Billroth I or II gastrectomy, with or without vagotomy, etc.). The absorption and digestion of fat was better after Billroth I than II. Postgastrectomy steatorrhea is probably not due to pancreatic insufficiency, but to a malabsorption syndrome secondary to an intestinal lesion.

**5666** **PEPTIC ULCER DIATHESIS IN PATIENTS WITH CHRONIC PANCREATITIS.** *(E.)* Dreiling, D. A. (Mt. Sinai Med. Sch., New York, N. Y.) and M. A. Naqvi. *Amer J Gastroent* 51(6):503-510, 1969.

A 15 yr review of 410 patients with pancreatitis revealed 155 with alcoholism, 145 with biliary disease and 110 patients with neither. Peptic ulcer disease was found in association with pancreatitis in 20 alcoholic patients, 6 biliary disease patients and 1 in one following trauma. There were 24 duodenal and 3 gastric ulcers. Seventeen patients underwent surgery for hemorrhage, perforation, obstruction, or intractibility of their peptic ulcers with 8 patients subsequently developing marginal ulcers. This complication was 4 times more common in patients with associated alcoholism than biliary disease.

**5667** **PERFORATING GASTRIC AND DUODENAL ULCERS. PRIMARY RESECTION VERSUS SUTURE: AN ANALYSIS OF TWO 15-YEAR SERIES.** *(E.)* Reimers, J. (Horsens Kommunehosp., Denmark). *Acta Chir Scand* 133(5):381-391, 1967.

At 1 hospital Billroth II resection was the method of choice in the treatment of perforating ulcer and was used in 80% of 113 cases seen during a 15 yr period. At a neighboring hospital 77% of 122 perforations were sutured. The 2 series were comparable in the following respects: 20% women, a mean age of 50 yr, 26% acute perforations, and less than 6 hr duration in half, as well as 8% wrong diagnosis (usually appendicitis). The difference of 4.3% in total mortality (15.0% at the first and 10.7% at the second) may therefore be attributed to differing indications for treatment. Division of the series into 2 periods showed a significant increase in mean age and a correspondin rise in total mortality. Women had a higher mortality rate than men, but they were 6 yr older than the men. The mort lity doubled every 10 yr for patients over 50. Advanced age was statistically significantly associated with longer perforatic duration, and a longer period of perforation was correlated with a higher mortality in patients over 50. Gastric perforations carried a statistically proven higher mortality than duodenal perforations, but the mean age of the gastric perforatio patients was also higher. The mortality attending resection w dependent upon the experience of the surgeon, and antibiotic reduced the number of complications of emergency resection Altogether 19 perforations occurred during hospitalization. The mortality was 58% in patients with a mean age of 63 yr, but the duration of the perforation was excessive–10 of the 19 patients having the perforation for more than 12 hr befor diagnosis. At the first hospital there were 3 perforations induced by cortisone; all patients underwent resection and 1 died. At the second hospital there were also three perforations: all were treated conservatively and all died. During th 15 yr period there were 5 perforations by gastric carcinomas, an incidence of 10%. In 2 instances the diagnosis was arrivec at only because the patients underwent resection.

**5668** **STRESS ULCERS.** *(Ger.)* Wense, G. (2nd Sur Clin., U. Vienna, Austria) and W. Kreuzer. *Bul Soc Int Chir* 27(6):513-520, 1968.

In a 10-yr period, 11 patients (4 women and 7 men, aged 56 82 yr) developed acute postoperative gastric or duodenal bleeding. These patients had undergone rectal amputations (3 cases), biliary tract surgery (2 cases), thoracotomies (2 cases), and a sympathectomy, goiter operation, cardiamyoton and nailing of the neck of the femur (1 case each). This group does not include patients who bled after cortisone or anticoagulant therapy or those who had undergone gastric or duodenal surgery. Except for 1 case, in which bleeding occurred 30 days after surgery, bleeding occurred 2-8 days afte the operation. In 2 cases bleeding was diagnosed only at autopsy. In 3 cases ulcers had perforated into the abdomina cavity. Four patients were not given antibiotics; 2 of these 4 had definite signs of enterocolitis at autopsy as did 3 who w given chloramphenicol, erythromycin, or tetracycline. In the 2 cases in which they were determined, plasma 17-hydroxysteroid levels were elevated during acute bleeding and later decreased to normal. In 6 of 9 cases it is possible that inadequate replacement of the blood volume caused increased ster levels.

**5669** **LIVER BIOPSY RESULTS IN 52 PATIENTS GASTRECTOMIZED FOR ULCERS.** *(It.)* Macchioro, G. (Gen. Hosp., Trieste, Italy), D. Magris and E. Visintini. *Minerva Med Giuliana* 8(6):523-530, 1969.

Liver biopsies were performed in 52 unselected patients (45 men and 7 women, 31-78 yr of age) who had been gastrectomized for ulcer. Hepatic damage was frequent: 21.15% of the cases were affected by cirrhosis, 34.62% by chronic hepa titis, 21.15% by steatosis. Only 23.08% presented a normal liver. The histopathological findings correlated well with the common clinical observations of hepatomegaly (90.4% of th patients). The precise factors involved in the pathologenesis of the liver observed damage could not be determined, but several factors suggest a nutritional cause (weight loss after surgery in 38.46% of the cases, hypoproteinemia or dysproteinemia present in 42.3 and 38.46%, resp., steatosis in 46.15%). The liver of the gastrectomized patient is much more sensitive to alcohol. While it is not possible to determine the degree of involvement of gastric resection in the pathogenesis of hepatic damage, there can be no doubt that it represents a condition which favors its appearance.

5670 **FAILURE OF POTENT ANTACID THERAPY TO HASTEN HEALING IN CHRONIC GASTRIC ULCERS.** *(E.)* Baume, P. E. (Royal North Shore Hosp., Sydney, Australia) and J. H. Hunt. *Aust Ann Med* 18(2): 113-116, 1969.

5671 **UNRESTRICTED DIET IN THE TREATMENT OF DUODENAL ULCER.** *(E.)* Buchman, E. (U. Iowa Coll. Med., Iowa City), D. T. Kaung, K. Dolan and R. N. Knapp. *Gastroenterology* 56(6):1016-1020, 1969.

5672 **MUCOSAL PYLOROPLASTY.** *(E.)* Qvist, G. (Royal Free Hosp., London, England) and J. A. Fox. *Brit J Surg* 56(3):172-177, 1969.

5673 **FREE PERFORATION OF ANASTOMOTIC ULCERS.** *(Rev.)(E.)* Thoroughman, J. C. (VA Hosp., Atlanta, Ga.), L. G. Walker Jr., B. G. Taylor and T. Dunn. *Ann Surg* 169(5):790-800, 1969.

5674 **THE GASTRIC ULCER PROBLEM.** *(Rev.)(E.)* Strode, J. E. (Straub Clin., Honolulu, Hawaii). *Amer J Surg* 118(2):327-334, 1969.

5675 **SURGICAL REPAIR OF DUODENUM ULCER: STOMACH RESECTION OR VAGOTOMY?** *(Ger.)* Berndt, H. (Robert Roessle Clin., Berlin, Germany). *Deutsch Gesundh* 24(24):1105-1109, 1969.

5676 **GASTRODUODENAL ULCER RESECTION.** *(Ger.)* Ruëff, F. L. (Surg. Clin., U. Munich, Germany), K. Wilhelm, H. M. Becker and G. Feifel. *Med Klin* 64(37):1642-1648,11969.

5677 **THE PEPTIC ULCER PROBLEM.** *(E.)* Harrison, R. C. (Dept. Surg., U. British Columbia, Vancouver, Canada). *Surgery* 66(4):802-805, 1969.

5678 **RESULTS OF PARTIAL GASTRECTOMY FOR PEPTIC ULCER.** *(E.)* Amdrup, E. (Munic. Hosp., Copenhagen, Denmark), J. C. Andreassen and P. Bach-Nielsen. *Acta Chir Scand* Suppl. 396:18-28, 1969.

5679 **MORTALITY FOLLOWING SURGICAL TREATMENT FOR MASSIVE GASTRODUODENAL HEMORRHAGE.** *(E.)* Nielsen, S. P. (Munic. Hosp., Copenhagen, Denmark) and E. Amdrup. *Acta Chir Scand* Suppl. 396: 29-35, 1969.

5680 **SELECTION OF THE OPERATION FOR DUODENAL ULCER.** *(Rev.)(E.)* Tanner, N. C. *Gut* 10(3):170-172, 1969.

5681 **GIANT DUODENAL ULCERATION. [CASE REPORT]** *(E.)* Rider, R. F. (Massachusetts Gen. Hosp., Boston). *JAMA* 209(3):408-409, 1969.

5682 **SURGICAL TREATMENT OF PEPTIC ULCER IN DEPARTMENT I, MUNICIPAL HOSPITAL, COPENHAGEN. PRESENT PRINCIPLES AND RECENT RESULTS.** *(E.)* Amdrup, E. (Munic. Hosp., Copenhagen, Denmark). *Acta Chir Scand* Suppl. 396:71-72, 1969.

5683 **BILATERAL SELECTIVE GASTRIC VAGOTOMY TECHNIQUE.** *(Ger.)* Schreiber, H. W. (Marien Hosp., Hamburg, Germany) and H. van Ackeren. *Langenbeck Arch Klin Chir* 318(4):249-263, 1967.

5684 **PERFORATIONS AND SEVERE BLEEDING FROM PEPTIC ULCERS. [CASE REPORT]** *(Rus.)* Kononenko, N. M. (Chernigov Regional Hosp., USSR) and Ia. P. Atlasov. *Klin Khir (Kiev)* (7):42-43, 1967.

5685 **RESULTS OF SURGICAL TREATMENT OF GASTRODUODENAL ULCERS.** *(Sp.)* Roa, G. P. (San Juan de Dios Hosp., Bogotá, Colombia). *GEN* 23(2):125-138, 1968.

5686 **CHRISTMAS CRACKER OR DUOGASTRONE SYMPTOMS. [CASE REPORT]** *(E.)* Evans, C. C. (Royal Southern Hosp., Liverpool, England) and J. B. Ridyard. *Brit Med J* 1(5636):120-121, 1969.

5687 **BILATERAL VAGOTOMY AND PYLOROPLASTY IN THE TREATMENT OF PEPTIC ULCER.** *(E.)* Mukherjee, P. R. (D.S.P. Hosp., Durgapur, India) and G. V. Shanbag. *J Indian Med Ass* 52(1):15-18, 1969.

5688 **IATROGENIC MARGINAL ULCER AND AFFERENT LOOP OBSTRUCTION AS A SEQUELAE TO OPERATION FOR INTRAMURAL DUODENAL HEMATOMA. [CASE REPORT]** *(E.)* Herrington, J. L. Jr. (Vanderbilt U. Med. Ctr., Nashville, Tenn.). *Amer Surg* 35(5):326-331, 1969.

5689 **THE EFFECT OF PSYCHOTROPIC DRUGS ON THE OCCURRENCE OF STRESS-INDUCED GASTRIC ULCERS.** *(E.)* Blum, J. E. and A. Hurlimann. *Med Psicosom* 13(1/2):250-254, 1968.

5690 **VAGOTOMY.** *(Pol.)* Benendo-Kapuscinska, B. (Dept. Med. Radiol., Acad. Med., Warsaw, Poland). *Pol Przegl Radiol* 32(1):97-99, 1968.

5691 **CLINICAL STUDY OF URINARY CATECHOLAMINE BY USING MEDGYESI'S METHOD.** *(It.)* Pistacchi, E. (Gen. Surg. Clin., U. Pavia, Italy). *Chirurgia* 22(2):85-90, 1967.

5692 **PEPTIC ULCER: PATHOGENESIS.** *(Sp.)* Freytes, M. A. *Rev Fac Cienc Cordoba* 25(2): 191-194, 1967.

5693 **VAGOTOMY–TECHNIQUE AND DISCUSSION.** *(E.)* Scott, P. R. (Royal Melbourne Hosp., Australia). *Aust New Zeal J Surg* 37(4):372-374, 1968.

5694 **A RARE COMPLICATION OF DUODENAL ULCER PERFORATION.** *(Bul.)* Uzunov, P. (Higher Med. Inst., Sofia, Bulgaria). *Khirurgiia (Sofiia)* 21(2): 184-186, 1968.

5695 **A CLINICAL STUDY OF THE BLIND LOOP SYNDROME.** *(Jap.)* Watanabe, Y. (Gifu U. Sch. Med., Japan), K. Murase, S. Watanabe, K. Kaya, E. Shimazu and M. Ando. *Arch Jap Chir* 37(5):717-725, 1968.

5696 **PERFORATED DUODENAL ULCER DURING PREGNANCY. [CASE REPORT]** *(Nor.)* Jenssen, H. (Central Hosp., Stavanger, Norway). *Nord Med* 78(40):1292-1293, 1967.

5697 **FURTHER STUDIES ON THE TREATMENT OF PEPTIC ULCERS WITH DOCA PROLONGATUM. I. CLINICAL.** *(Pol.)* Bojanowicz, K. (Acad. Med., Lodz, Poland), A. Zubowski, Z. Rybarczyk and W. Geraga. *Przegl Lek* 23(7):547-551, 1967.

5698 **PERFORATION OF PEPTIC ULCERS OF AN ANASTOMOSIS AND OF THE LARGE INTESTINE.** *(Rus.)* Samsonov, V. A. (Med. Fac., O. V. Kuusinen Petrozavodsk U., USSR). *Klin Khir (Kiev)* (8):21-25, 1967.

5699 **THE ELECTIVE MANAGEMENT OF GASTRIC ULCERATION.** *(E.)* Lawson, H. H. (Dept. Surg., U. Witwatersrand, Johannesburg, South Africa). *S Afr Med J* 43(26):817-818, 1969.

5700 **STRESS ULCER, EROSION AND HEMORRHAGE IN THE ALIMENTARY CANAL WITH CARDIAC INFARCTION.** *(Pol.)* Wiecko, W. (3rd Miners Hosp., Bedgoszcz, Poland). *Przegl Lek* 23(2):288-290, 1967.

5701 **STOMACH ULCERS IN CHILDREN. PRESENT TION OF A CASE.** *(Sp.)* García Sánchez, G. (American British Cowdray Hosp., Mexico) and I. E. Bank. *Rev Mexicana Radiol* 21(1):57-60, 1967.

5702 **THE THERAPEUTIC EFFECT OF A NEW ANTISECRETORY AND ANTACID SUBSTANC** *(It.)* Galli, L. (Inst. Surg. Clin. Surg. Ther., U. Siena, Italy) and A. Bissi. *Minerva Chir* 23(9):477-482, 1968.

5703 **TWO PERFORATED ULCERS OF THE DUODENUM IN AN 8-YEAR-OLD BOY.** *(Rus.)* Zudov, G. V. (Bai-Khak Distr. Hosp., Tuva Autonomous SSR, USSR). *Khirurgiia (Moskva)* 44(7):140, 1968.

5704 **STUDIES OF PROTEIN FRACTIONS IN PATIENTS WITH STOMACH ULCERS.** *(Pol.)* Adamczyk, B. (Inst. Oncol., Acad. Med., Krakow, Poland) and K. Durek. *Pol Przegl Chir* 40(5):553-559, 1968.

5705 **DUODENAL ULCER AS A CAUSE OF ACUTE ABDOMEN DURING PREGNANCY AND DELIVERY.** *(Bul.)* Piperkov, T. (Inst. Postgrad. Med., Plovdiv, Bulgaria) and S. Stoianov. *Akush Ginek (Sofiia)* 7(1):54-57, 1968.

5706 **GASTROINTESTINAL COMPLICATIONS DURING CORTICOSTEROID THERAPY.** *(Rus.)* Semenov, V. N. (Kemerovo Med. Inst., USSR) and V. N. Karkashin. *Khirurgiia (Moskva)* 44(9):40-42, 1968.

5707 **CLINICAL EVALUATION OF CLIDINIUM AND LIBRAXIN IN THE MANAGEMENT OF DUODENAL ULCER.** *(E.)* Amure, B. O. (U. Coll. Hosp., Ibadan, Nigeria). *Brit J Clin Pract* 23(7):290-292, 1969.

5708 **A METHOD OF OPERATION FOR PENETRATING DUODENAL ULCER.** *(E.)* Mano, K. (Okayama Saiseikai Hosp., Japan). *J Abdom Surg* 11(8):175-179, 1969.

5709 **CURRENT MANAGEMENT OF PEPTIC ULCER.** *(E.)* Tanur, B. T. (Hosp. Juarez, Mexico City, Mexico). *Canad Family Phys* 15(4):43-46, 1969.

See also: 5164,5223,5232,5242,5244,5246,5386,5398,5419,5451,5547,5564,5592,5723,5724,6053

10 THE PATHOLOGY AND CLINICAL ASPECTS
OF REGIONAL ENTERITIS. *(Ger.)* Kurpat, D.
t. Georg Reg. Hosp., Leipzig, Germany). *Zbl Chir* 93(23):
2-811, 1968.

study was made of 43 patients (24 men and 17 women,
ed 10-78 yr) with regional enteritis. The terminal ileum was
fected in 36 cases, the cecum in 20, the colon in 6, the sigma
2, and the rectum and jejunum in 1 case each. The length
the segment involved ranged from 5-150 cm. No apparent
use was present in 29 cases. Five patients had already under-
ne laparotomies and 9 others had conditions considered to
vor the development of regional enteritis (diarrhea, ulcerative
litis, carcinomas of the gallbladder and stomach, nonspecific
teritis, and tuberculosis). Six patients responded to conserva-
e treatment and laparotomies were performed on 35. Find-
gs at laparotomy included enlargement of the mesenteric
nph nodes in 12 cases and a peritoneal exudate in 18. Skip
eas were not present in any of these cases. Appendectomies
re performed in 26 cases and 2 fecal fistulas were found.
her procedures included 2 ileal resections, 6 ileocecal re-
ctions, 1 sigma resection, 1 colectomy, 2 repairs of fistulas
the small intestine, 1 exploratory laparotomy, and 3 ex-
nsive resections. Some patients had to have more than 1
eration. Eleven of these 43 patients died of complications
eus, bronchial pneumonia, peritonitis, cirrhosis). Follow-ups
28 patients made 3-11 months after surgery showed that
died of causes unrelated to enteritis, 3 patients had ileus
d had to be reoperated, and the others were asymptomatic.

11 CASE OF REGIONAL ENTERITIS CULMINAT-
ING INTO A POSTOPERATIVE SHORT
WEL SYNDROME. *(E.)* Melich, E. I. (Veterans Adminis-
tion Ctr., Bay Pines, Fla.). *Amer J Gastroent* 52(3):231-
3, 1969.

5712 FREE PERFORATION IN CHRONIC REGIONAL ENTERITIS. [CASE REPORT] *(E.)* Alavi, I. A. (Cook County Hosp., Chicago, Ill.), K. Printen and F. Steigmann. *Amer J Dig Dis* 14(6):420-423, 1969.

5713 MICRODIVERTICULA: A POSSIBLE CAUSE OF GRANULOMATOUS ILEOCOLITIS. *(E.)* Clark, R. M. (Oshawa Gen. Hosp., Ontario, Canada). *Canad Med Ass J* 100(22):1025-1031, 1969.

5714 OSTEOMYELITIS COMPLICATING REGIONAL ENTERITIS. [CASE REPORT] *(E.)* Goldstein, M. J. (Dept. Med., U. Chicago, Ill.), K. Nasr, H. C. Singer, J. G. D. Anderson and J. B. Kirsner. *Gut* 10(4):264-266, 1969.

5715 DYSPHAGIA AND ESOPHAGEAL ULCERATION IN CROHN'S DISEASE. *(E.)* Gelfand, M. D. (Wilford Hall USAF Hosp., Lackland Air Force Base, Texas) and C. L. Krone. *Gastroenterology* 55(4):510-514, 1968.

5716 REGIONAL ENTERITIS IN THE JEJUNUM WITH FREE PERFORATION. [CASE REPORT] *(Dan.)* Blom, J. (Central Hosp., Naestved, Denmark) and S. S. Pedersen. *Ugeskr Laeg* 130(26):902-904, 1968.

5717 RELAPSE OF REGIONAL ENTERITIS. *(It.)* Monti, G. F. (Inst. Clin. Gen. Surg., U. Rome, Italy), A. Leggeri, G. Cappellini, A. Thau and F. A. Maccioni. *Policlinico [Chir]* 75(1):1-47, 1968.

See also: 5089,5481

5718 **SERUM-IMMUNOGLOBULINS IN ADULT COELIAC DISEASE.** *(E.)* Asquith, P. (Gen. Hosp., Birmingham, England), R. A. Thompson and W. T. Cooke. *Lancet* 2(7612):129-131, 1969.

Serum-levels of IgG, IgA, IgM, and IgD were determined in 110 patients with adult celiac disease (confirmed by jejunal biopsy) and compared with levels in 152 healthy controls. Of the 110 patients, 37 females and 21 males were on a gluten-free diet, and 26 females and 26 men were on a normal diet. Significant increases in IgA were found, and these seem to be related to the quantity of gluten ingested and, in some patients, to milk sensitivity. Three patients with a progressive increase in IgA values developed gastrointestinal lymphoma. Significantly low IgG and IgM values were also noted; there was little change after gluten withdrawal.

5719 **JEJUNAL SECRETION OF ELECTROLYTES AND WATER IN NONTROPICAL SPRUE.** *(E.)* Schmid, W. C. (Mayo Clin., Rochester, Minn.), S. F. Phillips and W. H. J. Summerskill. *J Lab Clin Med* 73(5):772-783, 1969.

Isotonic solutions containing sodium, chloride, potassium, bicarbonate and glucose or mannitol were used to perfuse the proximal portions of the jejunum in 6 healthy volunteers and in 9 patients with nontropical sprue (4 men and 5 women; 42-67 67 yr old). In the 9 patients, the jejunum secreted sodium, chloride and water at a uniform rate into a variety of isotonic solutions to which the normal intestine responds by marked changes in absorption and secretion. Jejunal wastage of water and electrolytes is unaffected by treatment and clinical remission, probably reflecting persistence of morphological abnormalities in the proximal part of the jejunum. Although the normal mechanism for the absorption of sodium by the jejunum may have been lacking, the abnormalities in sprue and the normal mucosal potential difference suggested an additional active secretion of sodium. The jejunum in sprue was also impermeable to cations but not to the diffusion of isotopic water. These findings cannot be explained on the basis of decreased absorptive surface alone and suggest the loss of active transport processes, active secretion of sodium, and the decreased diffusion of cations.

5720 **SMALL GUT MUCOSAL ACTIVITIES OF PYRIMIDINE PRECURSOR ENZYMES IN CELIAC DISEASE.** *(E.)* Clark, M. L. (U. Pennsylvania Sch. Med., Philadelphia) and J. R. Senior. *Gastroenterology* 56(5):887-894, 1969.

Two enzymes in the pyrimidine biosynthetic pathway, aspartate carbamoyl transferase and dihydroorotate dehydrogenase, were measured in female Sprague-Dawley rat (200-250 g) and in human intestinal mucosa. Activities of aspartate carbamoyl transferase in normal mucosa obtained at surgery were 247 ± 114 nmoles/g/min. No inhibition of activity of this enzyme was noted after addition of cytidine mono-, di-, or triphosphate. Dihydroorotate dehydrogenase activity was 8.1 ± 9.2 nmoles/g/min from intestinal mucosa obtained at surgery. Peroral biopsy samples from normal subjects showed aspartate carbamoyl transferase activity of 282 ± 142 nmoles and dihydroorotate dehydrogenase activity of 9.9 ± 8.6 nmoles/g/min. Mucosa obtained from 5 patients with celiac disease showed normal or elevated enzyme activites; the more severe lesions showed the higher levels. These results provide indirect evidence to support increased cell turnover rather than maturation arrest in mitosis in the small intestinal epithelial cells in celiac disease.

5721 **JEJUNAL MUCOSA AND ABSORPTION STUDI IN TROPICAL MALABSORPTION SYNDROME** *(E.)* Desai, H. G. (Med. Div., Atomic Energy Establishment, Bombay, India) and K. N. Jeejeebhoy. *Indian J Path Bact* 10(2):107-122, 1967.

Fifty patients with tropical malabsorption syndrome and 13 subjects without clinical gastrointestinal disease were studie using jejunal suction tube biopsy samples to determine the relation between histopathological changes and the absorption of glucose, fat, and folic acid. There were mild atrophic chan in the jejunal mucosa of about 70% of the patients. The villi seen in section in all control subjects were long and slender and had little cellular infiltration. Four patients had both "leaf"-like and "convoluted" villi, 19 had only "convoluted" villi, and 1 had only raised polygonal areas or a "mosaic" appearance. As the villous height diminished "leaf"-like villi decreased and "convoluted" villi increased. Increased villous atrophy was accompanied by a porportional increase in glandular layer thickness. In none of the patients was a "flat" mucosa noted. Gluten-induced enteropathy is probably uncommon in the adult population in India. There was no correlation between absorption tests and the presence or absence of mucosal changes or the degree of atrophy. Jejunal biopsy in the diagnosis and follow-up of patients with gluten-induced enteropathy (nontropical sprue) is valuable, but in the study of patients with tropical malabsorption syndrome its limitations are obvious.

5722 **THE EFFECT OF VARYING FAT DIETS ON THE INCORPORATION OF FATTY ACIDS INTO ESTERS BY THE SMALL INTESTINE *IN VITRO*.** *(E.* Gelb, A. M. (Dept. Med., Mount Sinai Hosp., New York, N. Y *J Mount Sinai Hosp NY* 35(4):429-435, 1968.

Male golden hamsters were fed either a fat-free test diet or a regular stock diet containing 4% fat. For experiments involv ing a high-fat diet, corn oil was added to the regular stock die to raise the fat composition to 20%. Precise measurements of food intake could not be made because the animals scatter their food, but an excess was offered and they ate eagerly. It was estimated that each animal ate 10-15 g/day. The test animal and the control were sacrificed at the appropriate time interval. The proximal jejunum was removed, washed in salin and everted over a glass rod. Slices were placed in 25 ml Erlenmeyer flasks containing 4 ml incubation medium. Four to 5 incubations were performed on each animal. Myristic ac was used as the model fatty acid since it is incorporated into ester to the greatest extent. The percent incorporation of my stic acid per unit weight of intestine was calculated. In study the effect of a fat-free diet it was found that the 6 hamsters on the diet for 48 hr weighed the same as controls and that they tolerated the diet well. No significant difference was found in incorporation of $^{14}C$ myristic acid into ester/unit weight of intestine between the 2 groups. After 7-8 days on the fat-free diet, the intestines of the test group had a lower percent incorporation than controls. Both groups were in good condition. Animals on a fat-free diet for 1-3 months also had a lower incorporation than controls, the difference was even more significant than after 1 week of diet. Both groups seemed in good condition: mean weight at the time of sacrifice was 109 g for the test group and 140 g for the controls. A series of experiments was performed to determine how quickly the percent incorporation would return to normal values when fat was reintroduced into the diet. The percent incorporation of the group on the fat-free diet remained lower than the controls despite 1 hr refeeding of fat. In animals of a fat-free diet for 19-21 days, then fed a high fat diet for 2 hr, the percent incorporation of fat was restored to control values. Six hamsters were fed a 20% fat diet for 4-5 weeks. There was no difference in the incorporation of fatty acids although the experimental group had a mean weight of 98 g and the controls 121 g. It is possible that the animals disliked the high fat diet and reduced their intake. When animals were fed a diet containing 45% fat the hamsters reduced their intake to such an extent that they lost weight, looked sick and some even died after 2-3 weeks.

5723 **ISCHEMIC COLITIS, GASTRIC ULCERATION, AND MALABSORPTION IN A CASE OF PRIMARY AMYLOIDOSIS.** *(E.)* Brom, B. (Groote Schuur Hosp., Cape Town, South Africa), S. Bank, I. N. Marks, G. Milner and P. Baker. *Gastroenterology* 57(3):319-323, 1969.

5724 **RECURRENT BENIGN ILEAL ULCER OCCURRING WITH THE COELIAC SYNDROME. [CASE REPORT]** *(E.)* Davidson, A. R. (Frenchay Hosp., Bristol, England). *Brit Med J* 3(5666):341, 1969.

5725 **ABDOMINAL IRRADIATION FOLLOWED BY DIARRHEA AND TWENTY-FIVE YEARS LATER BY MALABSORPTION, DIABETES, HEADACHES AND DIPLOPIA. [CASE REPORT]** *(E.)* Strole, W. E. Jr. (Massachusetts Gen. Hosp., Boston) and B. Castleman. *New Eng J Med* 281(6):314-323, 1969.

5726 **PRIMARY ACQUIRED LACTASE DEFICIENCY WITH ACQUIRED HYPOGAMMAGLOBULINEMIA.** *(E.)* Caplinger, K. J. and S. W. Boellner. *Amer J Dis Child* 115(3):377-387, 1968.

5727 **PRIMARY MALABSORPTION.** *(Fl.)* Vermeeren, R. (Clin. Intern. Med., U. Gent, Belgium). *T Geneesk* 24(12):632-638, 1968.

5728 **SELECTIVE IMMUNOGLOBULIN A DEFICIENCY AND INTESTINAL NODULAR LYMPHOID HYPERPLASIA: CORRECTION OF DIARRHEA WITH ANTIBIOTICS AND PLASMA. [CASE REPORT]** *(E.)* Gryboski, J. D. (Yale U. Sch. Med., New Haven, Conn.), T. W. Self, A. Clemett and T. Herskovic. *Pediatrics* 42(5): 833-837, 1968.

5729 **ABSORPTION AND MALABSORPTION OF DIETARY FOLATE.** *(E.)* Butterworth, C. E. Jr. (Med. Coll. Alabama, Birmingham). *Amer J Clin Nutr* 21(9): 1121-1127, 1968.

5730 **SUGAR MALABSORPTION IN CHILDHOOD.** *(E.)* Luder, J. (Royal North. Hosp., London, England). *Ghana Med J* 7(1):4-10, 1968.

5731 **SIERACKI BODIES: EARLIEST LESION IN WHIPPLE'S DISEASE?** *(E.)* Sahgal, K. N. (Med. Coll., Baroda, India), D. B. Balar, B. K. Vyas and B. A. Sayed. *Indian J Path Bact* 10(2):123-126, 1967.

5932 **MALABSORPTION IN PATIENTS WITH DIVERTICULOSIS.** *(Dut.)* van Leer, E. (Dijkzigt Hosp., Rotterdam, Netherlands), J. Silberbusch and O. L. Oei. *Nederl T Geneesk* 110(40):1740-1745, 1967.

5733 **MALABSORPTION SYNDROME.** *(Rum.)* Gheorghescu, B. (Grivita Rosie Adult Hosp., Bucharest, Romania). *Med Intern (Bucur)* 19(10):1175-1185, 1967.

5734 **ANALYSES OF CARBON DIOXIDE AND FAT CONTENT IN THE LYMPHANGIECTATIC FORM OF PROTEIN-LOSING ENTEROPATHIES.** *(Ger.)* Wagner, A. (Med. U. Polyclin., Heidelberg, Germany), D. Grossmann and H. Schoenthal. *Verh Deutsch Ges Inn Med* 73(4):289-294, 1967.

5735 **DISACCHARIDASE ACTIVITY IN IDIOPATHIC LACTOSE INTOLERANCE AND DIFFUSE SMALL INTESTINE DISEASES.** *(Ger.)* Drube, H. C. (1st Med. U. Clin., Kiel, Germany), H. T. Hansen and U. E. Klein. *Verh Deutsch Ges Inn Med* 73(4):294-298, 1967.

5736 **CONCEPTS OF ABSORPTION IN MALABSORPTION.** *(Fl.)* Huybrechts, W. (Clin. Intern. Med., U. Gent, Belgium). *T Geneesk* 24(12):625-631, 1968.

See also: 5429,5665

**5737** **EXPERIMENTAL STUDY OF DEVASCULARIZATION OF THE COLON.** *(E.)* Marston, A. (The Middlesex Hosp., London, England), R. W. Marcuson, M. Chapman and J. F. Arthur. *Gut* 10(2):121-130, 1969.

Changes following interruption of the arterial supply to the colon were studied in 27 dogs, using 3 devascularizing operations of different extent and allowing the lesion to mature for periods of 1, 14 or 42 days. The procedure was well tolerated by the healthy animal and only rarely caused a major systemic illness. The earliest change seen radiologically was 'thumb printing, of the affected segment, due to mucosal edema and hemorrhage, which usually returned to normal within a few weeks, and was accompanied by a varying degree of spasm. Occasionally a persistent stenosis resulted. A brisk peripheral leukocytosis was noted following operation in all cases, which was unrelated to the degree of vascular injury. Postoperative levels of LDH, SGOT and SGPT did not vary significantly from the preoperative baseline. The serum level of alkaline phosphatase rose sharply in the immediate postoperative period, and was directly related to the extent of devascularization and mucosal necrosis. The pathological appearances, depending on the degree of ischemia inflicted, varied from slight mucosal congestion to extensive necrotic ulceration. On occasion a fibrous stricture resulted. The lesions were broadly similar to those seen in human ischemic colitis, but differ from them in the smaller number of hemosiderin-laden macrophages and the lesser degree of fibrosis.

**5738** **ISCHEMIC COLITIS.** *(E.)* Williams, L. F. Jr. (Boston City Hosp., Mass.), M. A. Bosniak, J. Wittenberg, B. Manuel, E. T. Grimes and J. J. Byrne. *Amer J Surg* 117(2):254-264, 1969.

Ischemic colitis is a specific clinical entity; spontaneous, in contrast to the well-known acute vascular insufficiency of the colon after surgical ligation of the inferior mesenteric artery, and reversible. Separation of this lesion from other types of acute colitis and from intestinal ischemia of the small bowel is necessary for therapy and prognosis differ. When the lesion occurs without arterial occlusion or with occlusion but with adequate collateral circulation, the clinical course is usually benign and emergency surgery is not required. When occlusion is present with poor collateral circulation, the course is severe and surgery required. Arteriography for diagnosis is indicated during the acute phase. Seven cases illustrate these findings and conclusions.

**5739** **AN EXPERIMENTAL PREPARATION SUITABLE FOR STUDYING THE EFFECT OF BACTERIAL CONTAMINATION AND INFECTION UPON THE HEALING OF COLON WOUNDS.** *(E.)* Ryan, P. (St. Vincent's Hosp., Melbourne, Australia). *Aust New Zeal J Surg* 38(4):364-369, 1969.

In order to test effect of bacterial contamination and infection upon colon wound healing, an experimental model was devised in the dog in which other factors affecting colon healing are controlled, and in which concomitant abscess formation is induced adjacent to the healing suture line, peritonitis being avoided by extraperitonealizing the colon in a subcutaneous pouch. In all 6 dogs whose subcutaneous pouch was inoculate with coliforms there was an anastomotic breakdown as well as in 2 of 5 others without extrinsic contamination. An increased length of time in the pouch before anastomosis seemed to increase the likelihood of breakdown.

**5740** **POSTMORTEM SURVEY OF DIVERTICULAR DISEASE OF THE COLON.** *(E.)* Hughes, L. E. (Princess Alexandra Hosp., Brisbane, Australia). *Gut* 10(5): 336-351, 1969.

A study of diverticulosis and diverticulitis in 200 colons examined at necropsy showed that diverticulosis is very common in the normal elderly population, with an incidence of 43% of all necropsies and of 48% in necropsies of patients aged 50 yr or more. No association was found between the presenc of diverticula and obesity, length of colon, gallstones or hypertension. There was a positive correlation between diverticulosi and increasing degrees of atheroma of the aorta, possibly associated with the effect of age on both conditions. Evidence of recent or old inflammatory disease was found in 12% of all cases with diverticula, mostly in those with extensive diverticulosis. In 2 cases, diverticulitis had been the cause of death. Cecal diverticula were present in 12% of the colons, somewhat more than half being associated with diverticula elsewhere in the colon. All cases were of the thin-walled variety, and no evidence of recent or old inflammation was found in any case. Most solitary diverticula may not be of the 'true' congenital type. Examination of the muscle of the sigmoid suggested that a thickness of circular muscle of 1.8 mm is the dividing line between the bowel of diverticular disease and normal bowe or bowel affected by simple spasm. On this basis, diverticular muscle abnormality was present in 36% of all colons and in 73% of colons containing diverticula. The incidence rose with increasing extent of involvement of the colon with diverticula. The facts that both diverticula and muscular abnormality may be found without each other, and that the incidence of such abnormality increases with the extent of the diverticula, sugges that the primary change is a functional one of increased pressures in the sigmoid colon, without associated anatomical chang This increased pressure may subsequently cause either diverticula or muscular change (as a result of work hypertrophy) or in most cases, both.

**5741** **A STUDY OF THE IMMUNOLOGIC ASPECTS OF CHRONIC ULCERATIVE COLITIS AND TRANSMURAL COLITIS.** *(E.)* Deodhar, S. D. (Cleveland Clin. Found., Ohio), W. M. Michener and R. G. Farmer. *Amer J Clin Path* 51(5):591-597, 1969.

The immunologic aspects of chronic ulcerative colitis (CUC) and of transmural colitis were studied in the sera of 41 patien with CUC, 35 with transmural colitis, 3 infants of mothers with CUC, 47 patients with other gastrointestinal diseases, 54 with diseases of autoimmune etiology and 52 with miscellaneous diseases. Sera were examined for colonic antibodies, thyroid antibodies, antinuclear factor, parietal cell antibodies, and serum immunoglobulin levels. Patients with CUC or tran mural colitis demonstrated a high incidence of colonic antibodies as compared with patients in the other groups, but

CUC and transmural colitis could not be differentiated on the basis of the colonic antibody titers. In both these groups there was no relationship between the colonic antibody titer and the everity of the disease, the presence or absence of extracolonic manifestations, or the presence or absence of steroid treatment. There was no significant increase in the presence of other autoantibodies in the patients having CUC or transmural colitis. The group of patients with autoimmune diseases showed a significantly high incidence of colonic antibodies, however. A ignificant number of patients with CUC or transmural colitis had immunoglobulin abnormalities, of which elevation of serum gA appeared to be the most common. There may be an "immunologic similarity" between CUC and transmural colitis despite clinical and pathological differences.

**5742 HAS THE PROGNOSIS OF PERFORATED APPENDIX CHANGED? A 25-YEAR SURVEY.** *(Ger.)* Kronberger, L. (Surg. Clin., U. Graz, Germany) and D. Schambri. *Wien Med Wschr* 117(37):840-844, 1967.

A study of the records of 1125 patients (612 men and 513 women) operated on for perforated appendix during the 25 yr period 1938-1963 showed that the prognosis has improved. The number of cases of perforated appendix has been relatively constant, while the number of cases of appendicitis has fluctuated. Primary mortality (11.0% or 124 deaths for the 25 yr period) has decreased: the mortality was 13.8% in 1938 (8 deaths), 22.2% in 1939 (14 deaths), 30% (the peak) in 1940 (24 deaths), and thereafter it decreased. There was no age or sex predilection in mortality. The cause of death was peritonitis in 98 of the 124 cases. Postoperative complications decreased and the average hospital stay declined from 20 to 13 days. The prognosis improved because of the use of antibiotics and the control of electrolyte balance. Since 1954 the routine procedure followed after surgery for a perforated appendix has been irrigation (several times) with 500 ml 0.9% saline solution at 45C, with 1 million IU penicillin G and 0.5-1 g streptomycin; there is a final instillation of 1 million IU penicillin and 0.5-1 g streptomycin depending upon the severity of peritonitis. Antibiotics are administered parenterally after the 2nd postoperative day.

**5743 THE EXPERIMENTAL PRODUCTION OF COLITIS IN THE RABBIT WITH PARTICULAR REFERENCE TO HIRSCHSPRUNG'S DISEASE.** *(E.)* Berry, C. L. (Hosp. Sick Child., London, England) and G. C. Fraser. *J Pediat Surg* 3(1):36-42, 1968.

Male and female rabbits, weighing about 1500 g, were anesthetized, and through a midline incision in a shaved abdomen a loop of colon was exteriorized and obstructed distally by a catgut suture. Then 0.5 ml lipopolysaccharide B. *E. coli* 0.127 containing 0.01 mg endotoxin was injected either directly into the wall of the gut immediately proximal to the obstructing suture, or into an arterial vessel supplying the segment. The bowel wall was then clamped with noncrushing clamps for 2 min. Considerable bleeding occurred before hemostasis could be achieved after intraarterial injection and infarction of the gut occurred once, so intraarterial injection was abandoned and 13 animals were injected with antigen directly into the bowel wall. Twenty-four hr postinjection, 0.15 mg/kg body weight of endotoxin was injected i.v. and 12 hr later the animals were sacrified and the bowel inspected. Portions of the injected segment were examined by conventional and fluorescence microscopy. A group of 4 animals was sacrificed before the second injection of endotoxin (i.e. 24 hr after operation) and served as controls. Of the 9 animals treated by injection of endotoxin into the bowel wall proximal to the obstruction with a subsequent i.v. injection 24 hr later, 6 developed a localized colitis. In each there was a slight distension of the bowel with some thickening of the serous coat. An area of greenish-brown matt appearing mucosa extending from the ligature around the gut proximally for 3.5-5 cm was seen in each animal. Sections showed an area of mucosal infarction usually not extending deeper than the submucosa thus resembling the lesion seen in human enterocolitis. The similarity between these experimental findings and the changes seen in neonates with enterocolitis is striking. It is possible that local invasion of the bowel wall by organisms may occur when there is impaired mucosal blood due to distension. Bacterial infection of distended bowel is not an adequate explanation for the pathogenesis of this condition. Staphylococci or other enteric pathogens have not been isolated from the stools of 13 patients with enterocolitis, nor from cultures of the gut contents or bowel wall taken at postmortem. Infection must be of primary importance in the later stages of the condition, but the initial mucosal insult is apparently vascular. Treatment must be directed at prevention of this change.

**5744 RELATIONSHIP BETWEEN SURVIVAL AND CERTAIN CLINICAL FEATURES IN CANCER OF THE COLON.** *(Pol.)* Kulicz, A. (Acad. Med., Zabrze, Poland). *Wiad Lek* 21(12):1017-1019, 1968.

Eighty-five cases (48 men and 37 women) of cancer of the colon, excluding rectal cancer, were observed between 1953 and 1966. Diagnosis was usually surgically or histologically confirmed or if surgery was not performed by radiology or clinically observation. Of the 85 patients, 72 were treated surgically and 13 conservatively. Palpable tumors in the abdomen were seen in 43; anemia in 38; and acute lack of patency in 19. Survival in cases of tumors palpable before surgery was similar to the survival in the entire series. Of the 38 patients with adequate follow-up 9 (23.7%) survived 5 yr after initial treatment; 5 patients (16.1%) with anemia survived 5 yr. Of the 16 patients with lack of patency only 1 survived 5 yr. Survival of cases with palpable tumors in the pit of the stomach was similar to the survival of cases with carcinoma of the colon (without palpable tumors). Acute lack of patency in the main alimentary canal as a clinical sign clearly decreases the chances of a permanent cure.

**5745 DIVERTICULAR DISEASE OF THE COLON. CLINICAL ASPECTS.** *(E.)* Tagart, R. E. B. (Newmarket West Suffolk Gen. Hosp., England). *Brit J Surg* 56(6):417-423, 1969.

The experience with 98 cases of colonic diverticular disease is summarized. The connection between pathological changes and symptoms in uncomplicated disease is not very close and the disturbance of function which causes the pathology is probably also responsible for the symptoms. Uncomplicated disease and that complicated by massive hemorrhage are best treated conservatively, provided that in the latter case carcinoma can be certainly excluded. The complication of inflammation requires surgical treatment if it is severe or if peritoneal reaction is inadequate. When inflammation is acute with general peritonitis the indications for surgery are unequivocal, the only problem being that of choosing the procedure best suited to the individual case from among the large number of possible methods of management. When inflammation is less severe or is localized, it may be difficult to decide whether to operate or not. The disease has a high natural remission rate and, when there is doubt, a conservative approach is safe and will be quite likely to give a good long-term result. The mortality rate for those with spreading or general peritonitis was 13%. This could probably be improved by a more meticulous application of the above principles. For diverticular disease as a whole, the mortality over 12 yr was 4%, while 14% of the group died from unrelated conditions.

**5746 ADRENERGIC INNERVATION OF BOWEL IN HIRSCHSPRUNG'S DISEASE.** *(E.)* Gannon, B. J. (Royal Child. Hosp., Melbourne, Australia), H. R. Noblet and G. Burnstock. *Brit Med J* 3(5666):338-340, 1969.

The adrenergic innervation of normal and aganglionic regions of bowel from patients with Hirschsprung's disease was investigated by a fluorescent histochemical technique. In normal bowel the adrenergic nerves end about intramural ganglion cells. In aganglionic bowel the adrenergic nerves form a dense varicose plexus in both muscularis externa and muscularis mucosae. The cause of megacolon in Hirschsprung's disease may be due to a lack of nervous pathways controlling the intrinsic reflexes, which is probably congenital in origin.

**5747 THE DIFFERENTIAL DIAGNOSIS OF COLITIS.** *(E.)* McGovern, V. J. *Pathology Annual* 4:127-158, 1969.

**5748 CURRENT CONCEPTS OF MANAGEMENT OF CONGENITAL MEGACOLON.** *(E.)* Levy, J. L. Jr. (Tulane U. Sch. Med., New Orleans, La.) and L. H. Linder. *J Louisiana Med Soc* 120(7):304-307, 1969.

**5749 THE MANAGEMENT OF VILLOUS TUMORS OF THE RECTUM AND COLON.** *(E.)* Boling, E. (Atlanta, Ga.), H. Finch and J. Nichols. *Southern Med J* 62(6):639-641, 1969.

**5750 ACUTE AMEBIC COLITIS. PROSPECTIVE ANALYSIS.** *(E.)* Cifarelli, P. S. (Holliswood, N. Y.). *New York J Med* 69(6):815-818, 1969.

**5751 ACUTE SUPPURATIVE APPENDICITIS SECONDARY TO METASTIC CARCINOMA FROM COLON. [CASE REPORT]** *(E.)* Schwartz, A. M. (Albert Einstein Coll. Med., Yeshiva U., Bronx, N. Y.) and A. Delman. *New York J Med* 69(6):823-825, 1969.

**5752 ADRENAL AND CLINICAL RESPONSES TO CORTICOTROPHIN AND PREDNISONE IN INFLAMMATORY DISEASE OF THE COLON.** *(E.)* Friedman, M. (St. Mark's Hosp., London, England), J. M. Hinton and J. E. Lennard-Jones. *Gut* 10(3):194-197, 1969.

**5753 CLINICAL CONSIDERATIONS AND THERAPY OF COLON ATRESIA. [CASE REPORT]** *(Ger.)* Helmer, F. (2nd Surg. U. Clin., Vienna, Austria), L. Howanietz, D. Lachmann and G. Weissenbacher. *Z Kinderchir* 7(2):235-241, 1969.

**5754 ISCHEMIC COLITIS IN SERIOUS HEART RHYTHM DISTURBANCES. [CASE REPORT]** *(Dut.)* Frankel, M. (Med. Fac., Rotterdam, Netherlands). *Nederl T Geneesk* 113(12):509-513, 1969.

**5755 PERFORATIVE CARCINOMA OF THE RIGHT COLON. REVIEW OF PREFERRED TREATMENT.** *(Fr.)* Muller, C. A. (Lausanne, Switzerland). *Helv C Acta* 36(1/2):35-40, 1969.

**5756 DIVERTICULAR DISEASE OF THE COLON. A DISEASE OF THIS CENTURY.** *(Rev.) (E.)* Painter, N. S. (Manor House Hosp., London, England). *Lancet* 2(7620):586-588, 1969.

**5757 COLON RESECTION IN SEVERE HEMOPHILIA A UNDER THE PROTECTION OF ANTIHEMOPHILIC CRYOPRECIPITATION.** *(Ger.)* Brueste H. (Child. Surg. Clin., U. Duesseldorf, Germany), W. Ringler, K. Glassner, P. C. Riech and E. Himmelbach. *Deutsch Med Wschr* 94(36):1799-1802, 1969.

**5758 APPENDICITIS PRESENTING AS INFECTION OF RIGHT THIGH. [CASE REPORT]** *(E.)* Keown, D. (Northampton Gen. Hosp., England). *Brit Med J* 3(5662):96-97, 1969.

**5759 RELAPSING AMOEBIC COLITIS OF 12 YEAR STANDING EXACERBATED BY CORTICOSTEROIDS.** *(E.)* Kanani, S. R. (Hosp. Trop. Dis., London, England) and R. Knight. *Brit Med J* 2(5657):613-614, 1969.

**5760 OCCULT APPENDICEAL CARCINOID. REPORT OF A CASE WITH FATAL METASTASES.** *(E.)* Turner, M. (Texas Med. Ctr., Houston) and H. S. Gallager. *Arch Path (Chicago)* 88(2):188-190, 1969.

**5761 HYPERTROPHY OF THE APPENDICES EPIPLOICAE AND LIPOMATOUS POLYPOSIS OF THE COLON. [CASE REPORT]** *(E.)* Swain, V. A. J. (Queen Elizabeth Hosp. Child., London, England), W. F. Young and E. M. Pringle. *Gut* 10(7):587-589, 1969.

**5762 POSTOPERATIVE DIFFICULTIES IN PATIEN WITH PERMANENT COLOSTOMY.** *(Cz.)* Novák, V. (Med. Fac., Comenius U., Plzeň, Czechoslovakia) and V. Kubiček. *Rozhl Chir* 47(1):8-14, 1968.

**5763 A TRIAL OF ANALYSIS OF ONE-THOUSAN CASE RECORDS OF PATIENTS WITH SYMPTOMS RECOGNIZED AS DUE TO CHRONIC APPENDICITIS.** *(Pol.)* Bogdanowski, T. (Munic. Hosp., Myslowice, Poland). *Pol Tyg Lek* 23(13):471-473, 1968.

764 **PROLAPSE OF THE EVERTED CAECUM THROUGH A FAECAL FISTULA AS A OMPLICATION OF INCARCERATED RIGHT-SIDED SCROAL HERNIA.** *(Pol.)* Pilch, M. (Munic. Hosp., Kutno, oland). *Pol Tyg Lek* 23(19):711-712, 1968.

765 **TWO CASES OF NEOPLASMS WITH FEVER DURING DIARRHOEA COMPLICATING NTESTINAL AND RENAL AMYLOIDOSIS.** *(Pol.)* rupa, B. (2nd Clin. Int. Dis., Acad. Med., Gdańsk, Poland). *iad Lek* 21(10):875-879, 1968.

766 **A NEW CASE OF DOUBLE APPENDIX.** *(Fr.)* Lemoine, P. (Maison Depart., Nanterre, rance), G. Berdugo and P. Detrie. *Presse Med* 76(13):615-17, 1968.

767 **MALAKOPLAKIA OF THE COLON. [CASE REPORT]** *(E.)* Rywlin, A. M. (U. Miami Med. ch., Fla.), R. Ravel and A. Hurwitz. *Amer J Dig Dis* 14(7): 91-499, 1969.

768 **A LATE COMPLICATION OF INVERSION OF THE APPENDICEAL STUMP. [CASE EPORT]** *(E.)* Maier, W. P. (Temple U. Hlth. Sci. Ctr., hiladelphia, Pa.) and G. P. Rosemond. *Amer J Surg* 118(3): 67-468, 1969.

769 **A REVIEW OF ABDOMINO-PERINEAL RESECTIONS AT THE VANCOUVER GENERAL OSPITAL 1960-1966.** *(E.)* Forward, A. D. (Vancouver Gen. Iosp., Canada). *Amer Surg* 35(9):660-664, 1969.

770 **AN UNUSUAL CAUSE OF APPENDICITIS: TORSION PRODUCED BY MESOAPPENDICEAL IPOMA. [CASE REPORT]** *(E.)* Killam, A. R. (VA Hosp., ayetteville, N. C.). *Amer Surg* 35(9):648-649, 1969.

771 **APPENDICITIS: THE FORGOTTEN SYNDROME.** *(E.)* Hirzel, L. F. Jr. (Clinton Valley Iosp., Mount Clemens, Mich.). *J Abdom Surg* 11(7):164-165, 969.

772 **SURGICAL IMPLICATIONS OF ACTINOMYCOSIS OF THE COLON INCLUDING MOCK CANCER.** *(E.)* Prokop, R. J. (Omaha, Nebraska), W. F. IcManus and C. R. Mota. *Nebraska Med J* 54(5):317-319, 969.

773 **BARIUM ENEMA DOUBLES AS A THERAPEUTIC MEASURE.** *(E.)* Potsaid, M. S. Cardinal Cushing Gen. Hosp., Brockton, Mass.), K. R. Rabinov nd R. I. Basch. *Med Counterpoint* 1(4):40-43, 1969.

774 **INCIDENTAL APPENDECTOMY: A STATISTICAL APPRAISAL.** *(E.)* Hewitt, D. (Sch. Hyg., J. Toronto, Canada), J. Milner and W. H. le Riche. *Canad Ied Ass J* 100(23):1075-1081, 1969.

775 **ACUTE APPENDICITIS IN A SMALL COMMUNITY HOSPITAL.** *(E.)* Howorth, M. B. Jr. (Oxford-Lafayette Community Hosp., Miss.). *Southern Med J* 62(5):548-550, 1969.

5776 **POLYPOID GANGLIONEUROFIBROMATOSIS OF THE LARGE BOWEL. [CASE REPORT]** *(E.)* Donnelly, W. H. (Child. Hosp. Pittsburgh, Pa.), W. K. Sieber and E. J. Yunis. *Arch Path (Chicago)* 87(5):537-541, 1969.

5777 **TREATING LARGE-BOWEL OBSTRUCTION.** *(E.)* Byrne, J. J. (Boston U. Sch. Med., Mass.). *Postgrad Med* 44(3):237-243, 1968.

5778 **LARGE-BOWEL OBSTRUCTION AND RUPTURE OF THE DIAPHRAGM. [CASE REPORT]** *(E.)* Hardy, K. J. (The Royal Melbourne Hosp., Australia), E. S. R. Hughes and A. M. Cuthbertson. *Med J Aust* 1(13):684-686, 1969.

5779 **EOSINOPHILIC GRANULOMA OF THE GASTRO-INTESTINAL TRACT AND LIVER: THREE CASES WITH UNUSUAL FEATURES.** *(E.)* Dutt, A. K. (Inst. Med. Res., Kuala Lumpur, Malaysia), M. K. Kutty and A. Tharmaratnam. *Med J Aust* 1(26):1360-1361, 1969.

5780 **RECTAL PARAFFINOMA.** *(E.)* Bennett, D. H. J. (Royal Infirm., Cardiff, Wales). *Proc Roy Soc Med* 62(8):818, 1969.

5781 **INTESTINAL DUPLICATION IN AN ADULT WITH A PICTURE SIMULATING ACUTE APPENDICITIS.** *(It.)* Buccellato, C. (Inst. Anat. Surg., U. Palermo, Italy) and G. D. Di Lorenzo. *Minerva Chir* 23(6): 288-295, 1968.

5782 **SIGMOID MYOTOMY WITH PERITONEAL GRAFT.** *(E.)* Daniel, O. (Royal Alexandra Hosp., Rhyl, Wales). *Proc Roy Soc Med* 62(8):811-812, 1969.

5783 **BRONCHO-PLEURO-COLONIC FISTULA.** *(E.)* Salomon, J. (Beilinson Hosp., Petah Tikva, Israel), I. Kott and M. J. Levy. *Israel J Med Sci* 3(4):558-560, 1967.

5784 **APPENDIX ABSCESSES.** *(It.)* Moncalvi, S. (Ca Granda Gen. Hosp., Milan, Italy), G. Candela and M. Porati. *Chir Ital* 19(6):1415-1426, 1967.

5785 **THE IMPORTANCE OF SERUM AMYLASE IN THE DIAGNOSIS OF ACUTE ABDOMEN.** *(E.)* Colombo, P. (Inst. Gen. Clin. Surg. Ther. Surg., U. Pavia, Italy), G. Pedroni and L. Scarabelli. *Chir Ital* 19(6): 1365-1381, 1967.

5786 **HEMORRHOID RESECTION BY AMPUTATION USING THE PROCEDURE DEVELOPED BY EURICO BRANCO RIBEIRO.** *(Sp.)* Falco, A. A., M. A. Gomez, A. Guardo, J. Rabinovich, M. E. Mihura and J. Gesualdi. *An Paul Med Cir* 94(4):121-125, 1967.

5787 **CARCINOMA OF THE RECTUM IN A BOY AGED 14.** *(Dut.)* Olthuis, G. (St. Hippolytus

Hosp., Delft, Netherlands). *Nederl T Geneesk* 111(48):2174, 1967.

5788 DIFFERENTIAL DIAGNOSIS OF STENOTIC PERIDIVERTICULITIS IN THE LARGE INTESTINE. *(Ger.)* Becker, H. (Nordwest Hosp., Frankfurt/M, Germany) and E. Ungeheuer. *Fortschr Med* 85(23):1000-1004, 1967.

5789 ON CYTOLOGIC DIAGNOSIS OF MALIGNANT TUMORS OF THE DISTAL COLON. *(Rus.)* Novik, V. I. (N. N. Petrov Res. Inst. Oncol., Leningrad, USSR). *Vopr Onkol* 13(9):33-40, 1967.

5790 PRE-OPERATIVE RADIOTHERAPY OF EXPERIMENTAL COLON CANCER. *(It.)* Agostino, D. (Memorial Sloan Kettering Cancer Ctr., New York, N. Y.). *Nunt Radiol* 33(4):379-388, 1967.

5791 ADENOVILLOUS PAPILLOMA OF THE RECTUM WITH ELECTROLYTE DISTURBANCES. [CASE REPORT] *(Sw.)* Ekelund, G. (Munic. Hosp., Malmo, Sweden) and U. Evaldsson. *Nord Med* 78(49): 1616-1618, 1967.

5792 STANDARD FINDINGS IN PROCTOLOGY. CLINICAL RECORDS OF PROCTOLOGY. *(Por.)* Rago, G. *Hospital (Rio)* 72(4):1143-1160, 1967.

5793 NEEDLE BIOPSY OF RECTAL TUMORS. *(Rus.)* Baron, Iu. I. (Proctol. Lab., Minist. Hlth., Moscow, USSR) and V. L. Rivkin. *Vopr Onkol* 13(9):93-96, 1967.

5794 PROLAPSE OF THE RECTUM IN ADULTS. A SERIES OF 7 CASES. *(Fr.)* Davy, A. (Rouen, France). *Ouest Med* 20(22):1381-1385, 1967.

5795 CARCINOID AND INFLAMMATORY PROCESSES IN THE APPENDIX. *(Rus.)* Avedisov, S. S. (Moscow Munic. Hosp. No. 30, USSR) and V. P. Strel'tsov. *Klin Khir (Kiev)* (8):44-46, 1967.

5796 ERRORS AND DIFFICULTIES IN DIAGNOSING CANCER OF THE CECUM. *(Rus.)* Gropianov, M. A. (Crimean Med. Inst., Simferopol, USSR). *Klin Khir (Kiev)* (8):76-78, 1967.

5797 PREPARATORY EVACUATION OF THE INTESTINE IN RADIOLOGY. *(Sp.)* Frenández Nolasco, R. (Mexican Soc. Radiol., Mexico). *Rev Mexicana Radiol* 21(1):23-30, 1967.

5798 A CASE OF PEUTZ-JEGHERS SYNDROME. *(Fr.)* Barbier, J., J. R. Giraud and J. Payen. *Ouest Med* 20(19):1045-1049, 1967.

5799 SURGICAL TRAUMATISM OF COLONIC AND RECTAL CARCINOMAS: SURELY A CAUSE OF RECURRENCE AT THE COLIC ANASTOMOSIS LEVEL. *(Fr.)* Couinaud, C. (St. Antoine, Hosp., Paris, France). *Presse Med* 76(20):979-980, 1968.

5800 DIAGNOSTIC MISTAKES IN CHRONIC ULCERATIVE COLITIS. *(Rus.)* Atabekova, K. S. (M. I. Kalinin Andizhan Med. Inst., USSR). *Klin Med (Moskva)* 46(6):153-154, 1968.

5801 DIAGNOSTIC DIFFICULTIES IN AN ATYPICA
CASE OF AN ABSCESS IN THE APPENDIX. *(Sp.)* Novoa Moron, E. (Inst. Postgrad. Med., Spain). *An Cas*
*Salud Valdecilla* 28(3/4):77-82, 1967.

5802 PRIMARY RESECTION OF VOLVULUS SIGMOID COLON. EXPERIENCE OF A SURGEON IN GUINEA. *(Cz.)* Šťastný, P. (Gen. Med. Fac., Charles U., Prague-Motol, Czechoslovakia). *Rozhl Chir* 47(1): 53-57, 1968.

5803 DIFFUSE ANGIOMA OF THE INFUNDIBULU
OF THE URINARY BLADDER AND OF THE ANAL CANAL. *(Fr.)* Busson, A., R. Ycre and M. Bard. *Rev Med* 9(8):509-510, 1968.

5804 EXTRA-INTESTINAL ASCARIS GRANULOMA
[CASE REPORT] *(E.)* Mylvaganam, C. (Kandy Gen. Hosp., Ceylon) and R. G. Panabokke. *J Trop Med Hyg* 72(4):98-100, 1969.

5805 INSIDIOUS APPENDICITIS. *(Dut.)* Kuijjer, P. J. (State U., Groningen, Netherlands). *Nederl T Geneesk* 112(42):1889-1893, 1968.

5806 REDUCING STRANGULATED HEMORRHOIDS WITH ETHYL CHLORIDE. *(E.)* Broad, C. P. (St. Peter's Hosp., Surrey, England). *Lancet* 1(7545):729, 1968.

5807 RADICAL HEMORRHOIDECTOMY BY A CLOSED-SYSTEM METHOD; A NEW TECHNIQ
WITH AID OF AN OBTURO-RETRACTOR. *(Dut.)* Wai, T.
(Cent. Hosp., Paramaribo, Surinam). *Nederl T Geneesk* 112(3
1481-1484, 1968.

5808 ANO-RECTAL ABSCESS. TREATMENT BY INCISION, CURETTAGE AND PRIMARY SUTURE. *(Nor.)* Ramstad, K. R. *T Norsk Laegeforen* 88(5)
332-333, 1968.

5809 PROLAPSE OF THE RECTUM, TREATED BY THE METHOD OF ROSCOE GRAHAM. [CASE REPORT] *(Dut.)* Nijenhuis, W. (Binnen Hosp., Amsterdam, Netherlands). *Nederl T Geneesk* 112(25):1161-1164, 1968.

5810 LEIOMYOSARCOMA OF THE COLON. [CASE REPORT] *(Dut.)* Vaas, F. (Munic. Hosp., Berg
Netherlands). *Nederl T Geneesk* 112(28):1294-1296, 1968.

5811 GASTROSCHISIS AND COLONIC OBSTRUCTION. *(E.)* Coupland, G. A. E. (Dept. Surg., U. Sydney, Australia). *Med J Aust* 1(7):344-345, 1969.

5812 LARGE-BOWEL OBSTRUCTION AND RUPTURE OF THE DIAPHRAGM. *(E.)* Hardy, K. J. (Dept. Surg., U. Melbourne, Australia), E. S. R. Hughes and A. M. Cuthbertson. *Med J Aust* 1(13):684-686, 1969.

5813 JUVENILE POLYPOSIS COLI. *(E.)* Johnston, G. W. (Royal Victoria Hosp., Belfast, North. Ireland), D. Eakins and A. D. Gough. *Ulster Med J* 37:170-174, 1968.

5814 COLON HERNIA THROUGH A HIATUS IN THE BROAD LIGAMENT–REPORT OF A CASE AND REVIEW OF THE LITERATURE. *(E.)* Rabushka, S. E. (Lake Forest Hosp., Ill.). *Obstet Gynec* 31(2):261-265, 1968.

5815 THE ADVANTAGE OF SPHINCTEROTOMY FOR ANAL FISSURE BY THE TRANSCUTANEOUS ROUTE AND UNDER LOCAL ANESTHESIA. *(Fr.)* Dissard, P. (Munic. Hosp., Lyon, France). *Rev Med* 9(8):505-507, 1968.

5816 ENEMA SHOCK IN HIRSCHSPRUNG'S DISEASE. *(E.)* Young, J. F. (St. George's Hosp., London, England), D. Cave and B. N. Brooke. *Dis Colon Rectum* 11(5):391-395, 1968.

5817 IMPLANTATION OF CANCER CELLS DURING OPERATIONS FOR CANCER OF THE RECTUM. *(Rus.)* Ryzhikh, Z. N. (Sci. Res. Lab. Proctol., Moscow, USSR), S. N. Fain and G. N. Pestovskaia. *Khirurgiia (Moskva)* 44(11):70-77, 1968.

5818 THE CONTENT OF SUGAR, DIASTASE AND ALDOLASE IN THE EXUDATE OF THE ABDOMINAL CAVITY IN ACUTE APPENDICITIS. *(Rus.)* Zhloba, A. F. (Obninsk Munic. Hosp., USSR). *Khirurgiia (Moskva)* 44(9):86-89, 1968.

5819 THE JUVENILE POLYP OF THE COLON. *(E.)* Ward, J. G. Jr. (Med. Coll. S. Carolina, Charleston) and J. B. Othersen Jr. *Amer Surg* 34(8):566-571, 1968.

5820 ACTINOMYCOSIS OF THE APPENDIX. *(Fr.)* Casanova, G., J. M. Maupin and B. Brisou. *Bordeaux Chir* (2):88-90, 1968.

5821 TREATMENT OF ACQUIRED MEGACOLON BY RETRO-RECTAL LOWERING OF THE COLON USING PERINEAL COLOSTOMY: THE MODIFIED DUHAMEL OPERATION. *(Por.)* Haddad, J. (Fac. Med., U. São Paulo, Brazil). *Rev Hosp Clin Fac Med S Paulo* 23(5): 235-253, 1968.

5822 A CASE OF GIANT APPENDIX. *(Rus.)* Reznitskii, M. I. (2nd Darnitskii Reg. Hosp., Kiev, USSR) and N. G. Rabinovich. *Khirurgiia (Moskva)* 44(11):119, 1968.

5823 X-RAY STUDIES OF THE LARGE INTESTINE IN PATIENTS WITH GYNECOLOGICAL DISORDERS. *(Rus.)* Shnirel'man, A. I. (P. A. Gertsen Oncol. Inst., Moscow, USSR), V. M. Razin and V. M. Bellonskii. *Akush Ginek (Moskva)* 44(8):70-71, 1968.

5824 RETICULOSARCOMA OF THE RECTUM. *(Sp.)* Monaco, I. (Santa Cruz y San Pablo Hosp., Barcelona, Spain) and A. Gimenez-Salinas. *Rev Esp Enferm Apar Dig* 27(3):461-469, 1968.

5825 GRANULOMATOUS COLITIS OR CROHN'S DISEASE OF THE COLON. *(Fr.)* Vivier, G. (Vittel Hosp., Vosges, France), M. Mouktar, M. Bessot and B. Pierson. *Ann Radiol (Paris)* 11(1/2):75-79, 1968.

5826 POST-IRRADIATION REACTIONS OF THE RECTUM IN PATIENTS TREATED WITH RADIUM BY THE MODIFIED PARIS TECHNIQUE IN THE YEARS 1957-1960. *(Pol.)* Kwaśniewska-Rokicińska, C. (Inst. Oncol., Gliwice, Poland), S. Szelc and M. Faferek. *Pol Przegl Radiol* 32(1):108-111, 1968.

5827 EMERGENCY RELAPAROTOMY AFTER PERITONEAL-PERINEAL AND ABDOMINAL OPERATIONS FOR CANCER OF THE RECTUM AND LARGE INTESTINE. *(Rus.)* Ryzhikh, A. N. (Sci. Res. Lab. Proctol., Minist. Hlth. RSFSR, Moscow, USSR) and Iu. M. Militarev. *Khirurgiia (Moskva)* 44(9):21-27, 1968.

5828 DIAGNOSIS AND TREATMENT OF CLOSED INJURIES TO THE INTRAPERITONEAL PART OF THE RECTUM. *(Rus.)* Fidrus, Ie. I. (N. V. Sklifosovskii Sci. Res. Inst. First Aid, Moscow, USSR). *Khirurgiia (Moskva)* 44(9):35-40, 1968.

5829 ACUTE APPENDICITIS IN PATIENTS WITH MYASTHENIA. *(Rus.)* Tolstov, G. V. (Leningrad Inst. Postgrad. Med., USSR) and V. N. Vasil'iev. *Khirurgiia (Moskva)* 44(9):48-51, 1968.

5830 HISTOCHEMICAL PECULIARITIES OF THE MUCUS AND CHANGES IN COLLAGEN IN THE MUCOUS FORM OF CARCINOMA OF THE LARGE INTESTINE. *(Rus.)* Levin, V. N. (Leningrad Inst. Sanit. Hyg. Med., USSR) and Ie. A. Mikheieva. *Arkh Pat* 30(6):64-68, 1968.

5831 BILATERAL LIGATION OF THE HYPOGASTRIC ARTERY. *(Hun.)* Lóránd, P. (Bács-Kiskun Distr. Counc. Hosp., Hungary). *Magy Sebesz* 21(6):391-392, 1968.

See also: 5205,5393,5399,5417,5458,5471,5567,5598,5599,5617,5636,5645,5698,5741,5905

5832 **AN EXPERIENCE OF ULCERATIVE COLITIS. I. TOXIC DILATION IN 55 CASES.** *(E.)* Jalan, K. N. (U. Glasgow, Scotland), W. Sircus, W. I. Card, W. A. Falconer, J. Bruce, G. P. Crean, J. P. A. McManus, W. P. Small and A. N. Smith. *Gastroenterology* 57(1):68-82, 1969.

A series of 55 cases (32 female, 23 male) of toxic dilation occurred in a group of 399 cases of ulcerative colitis. "Toxic dilation" of the colon in ulcerative colitis is shown to result in a high mortality (21/45 managed medically). Perforation of the colon, massive hemorrhage and bacteremia are more common than in colitis without dilation and adversely affect prognosis. It is necessary to identify the cases at risk as quickly as possible. The outcome appears to be adversely modified by sex (female) a long history of the disease, and an increased duration of the present attack, but is not significantly influenced by age, extent of involvement of the colon, mode of onset, or whether the complication appears in a first attack or relapse. Prognosis has improved since the introduction of intensive care including corticosteroids and protein replacement, but deterioration and death still occurred in more than one-third. Most of the patients treated conservatively who died did so within 10 days. Therefore, once the complication has been recognized, surgery should be undertaken with the minimum of delay.

5833 **ULCERO-HEMORRHAGIC RECTOCOLITIS IN TWO AFRICANS.** *(Fr.)* Carayon, A. (Hôpital Principal, Dakar. Senegal), J.-J. Reville, R. Colomar and B. Piquard. *Bull Soc Med Afr Noire Lang Franc* 13(3):484-489, 1968.

The only 2 cases of ulcero-hemorrhagic rectocolitis in African subjects have been observed in Dakar. The first (female, 15 yr old) was hospitalized in 1965 for dysentery with dehydration with a long history of digestive disturbances. The endoscopy showed a large hemorrhoid and a congested, bloody and ulcerated rectal mucosa. X-ray showed severe colic anomalies with secretory pathology and an irregular aspect of the mucosa. Corticoid and sulfamide treatment was ineffective and, increased the protein alterations (hypoproteinemia and hypoalbuminemia) and the hemorrhages. An infiltration bilaterally of novocain of the white substance of the prefrontal lobes gave good results. The second patient (female, 43 yr old) presented with an isolated hemorrhagic ulceration of the anal canal with a hemorrhoid, associated with a deterioration of the general condition. The ulceration and the hemorrhoid were excised but there was a lack of cicatrization, profuse muco-bloody anal discharges, deterioration in the general condition, stomatitis, ulcerous glossitis, and anemia. After 1 month a recto-vaginal fistula appeared. After 6 days a dysenteric syndrome with mucopurulent and hemorrhagic emissions appeared. A further perineal suppuration and hemorrhage caused a collapse, followed by septicemia.

5834 **ULCERATIVE COLITIS-LIKE LESION IN SIAMANG GIBBONS.** *(E.)* Stout, C. (U. Oklahoma Med. Ctr., Oklahoma City) and R. L. Snyder. *Gastroenterology* 57(3):256-261, 1969.

5835 **SURGICAL TREATMENT OF ULCERATIVE COLITIS IN CHILDREN. [CASE REPORT]** *(Ger.)* von Buch, K. G. (Surg. U. Clin., Cologne, Germany) and W. Schumacher. *Z Kinderchir* 7(2):248-257, 1969.

5836 **PEDIATRIC COMMENTS ON THE ARTICLE BY K. G. v. BUCH AND W. SCHUMACHER ENTITLED "SURGICAL TREATMENT OF ULCERATIVE COLITIS IN CHILDREN".** *(Ger.)* Schäfer, K. H., H. H. Nixon, H. B. Eckstein, W. von Ekesparre, K. G. von Buch and W. Schumacher. *Z Kinderchir* 7(2):257-261, 1969.

5837 **RADIOLOGY DIAGNOSIS DIFFICULTIES IN ULCERATIVE COLITIS.** *(Ger.)* Naegele, E. (Med. Clin., U. Giessen, Germany). *Med Klin* 64(37):1633-1637, 1969.

5838 **SURGICAL TREATMENT OF ULCERATIVE COLITIS.** *(Ger.)* Maerz, E. (Nordwest Hosp., Frankfurt/M, Germany) and H. Becker. *Med Klin* 64(37):1638-1641, 1969.

5839 **PSEUDO-ULCERATIVE COLITIS PROXIMAL TO OBSTRUCTING COLON CARCINOMA.** *(E.)* Rutledge, R. H. (Fort Worth, Texas). *Amer Surg* 35(5): 384-388, 1969.

5840 **NON-SPECIFIC ULCERATIVE COLITIS IN TWO ASIAN PATIENTS IN SINGAPORE.** *(E.)* Fung, W. P. (Dept. Clin. Med., U. Singapore) and O. T. Khoo. *Singapore Med J* 10(1):54-56, 1969.

5841 **POTASSIUM DEPLETION IN ULCERATIVE COLITIS. [CASE REPORT]** *(Dut.)* Alberts, C. (Wilhelmina Hosp., Amsterdam, Netherlands) and B.J.C.M. de Vet. *Nederl T Geneesk* 113(25):1092-1099, 1969.

5842 **FECAL FLORA OF PATIENTS WITH ULCERATIVE COLITIS DURING TREATMENT WITH SALICYLAZOSULPHAPYRIDINE.** *(E.)* Cooke, E. M. (St. Bartholomew's Hosp., London, England). *Gut* 10(7):565-568, 1969.

5843 **ULCERATIVE COLITIS SECONDARY TO A PARTIALLY STENOSED SIGMOID NEOPLASM.** *(Sp.)* Pedrosa, C. S. (Gen. Hosp. Asturias, Oviedo, Spain), M. Garcia Moran, M. Zomeño and J. Marcos. *Rev Esp Enferm Apar Dig* 27(3):453-460, 1968.

5844 **STENOSIS IN THE UPPER ILEUM CAUSED BY THE CHRONIC ULCERATIVE PROCESS IN THE CARCINOID.** *(Ger.)* Schenk, K. E. (Inst. Pathol., Free U. Berlin, Germany). *Z Aerztl Fortbild (Berlin)* 56(9): 629-635, 1967.

5845 **PSYCHOLOGICAL STATE OF COLITIS PATIENTS.** *(Ger.)* Feiereis, H. (2nd Med. Clin. Polyclin., Med. Acad., Luebeck, Germany). *Verh Deutsch Ges Inn Med* 73(4):701-706, 1967.

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| 5846 | **CONSERVATIVE TREATMENT OF VARIOUS FORMS OF ULCERATIVE COLITIS.** *(Pol.)* | Dyczkowska, M. (3rd Clin. Intern. Dis., Acad. Med., Wroclaw, Poland), S. Kotlarek-Haus and K. Gabryś. *Pol Tyg Lek* 23(26):984-986, 1968. |

See also: 5089,5092,5143,5713

5847 TRAUMATIC PANCREATIC CYSTS. *(Pol.)* Gabrys, A. (PKP Hosp., Katowice, Poland), Z. Hajduk and Z. Saiczuk. *Wiad Lek* 21(20):1827-1831, 1968.

The following are recommended in the treatment of pancreatic cysts: 1) determination of the type; 2) excision of portions of the pancreas together with the cyst; 3) internal drainage (to the stomach, duodenum, small intestine or biliary vesicle). The majority of traumatic pancreatic cysts are best treated by internal surgical draining. The specific method of surgical procedure depends on each individual case. Case reports for 2 patients are presented, 2 males 20 and 69 yr old, with traumatic pancreatic cysts. Both were treated by surgical drainage. The first patient had the disorder 4 months before diagnosis. For the latter patient 10 yr elapsed, with periodic hospitalizations, before diagnosis. Traumatic pancreatic cysts should be diagnosed early.

5848 CHARACTERIZATION OF THE RESPONSES OF CIRCULATING GLUCAGON-LIKE IMMUNOREACTIVITY TO INTRADUODENAL AND INTRAVENOUS ADMINISTRATION OF GLUCOSE. *(E.)* Unger, R. H. (Dept. Physiol., Vanderbilt U., Nashville, Tenn.), A. Ohneda, I. Valverde, A. M. Eisentraut, J. Exton, V. Harris, A. M. Jones and G. Thompson. *J Clin Invest* 47(1):48-65, 1968.

The effects of ingested and of infused glucose upon circulating glucagon-like immunoreactivity were compared in 14 triply catheterized dogs. Although the mean level of glucagon-like immunoreactivity in the vena caval plasma more than doubled within 60 min after intraduodenal administration of 2 g/kg glucose, no change in the mean vena cava level was observed after i.v. infusion of the same dose over 90 min. During glucose infusion mean glucagon-like immunoreactivity declined, so perhaps hyperglycemia suppresses rather than stimulates pancreatic glucagon secretion. The effect of pancreatectomy performed 1 hr after the intraduodenal administration of glucose was studied: circulating insulin disappeared but the level of glucagon-like immunoreactivity continued to rise thus establishing its extrapancreatic origin. Measurements of glucagon-like immunoreactivity in plasma obtained simultaneously from pancreatico-duodenal and mesenteric veins and from the vena cava showed the increment after intraduodenal glucose loading to be greatest in the mesenteric vein in 8 of 12 experiments: the gut seemed the likely source of the rise. Acid-alcohol extracts of canine jejunum were compared with similar glucagon-containing extracts of canine pancreas. On a G-25 Sephadex column the elution volume of the jejunal immunoreactivity was found to be smaller than that of glucagon, which suggested a molecular size at least twice that of pancreatic glucagon. The *in vivo* and *in vitro* biological activities of the eluates containing jejunal glucagon-like immunoreactivity seemed to differ from activities of eluates containing pancreatic glucagon. The jejunal material lacked hyperglycemic activity when injected endoportally into dogs, lacked glycogenolytic activity in the isolated perfused rat liver, and did not increase $3'5'$-cyclic adenylate in the perfused liver; however, like glucagon it seemed to stimulate insulin release. The material in intestinal extracts is either a different substance or a different form from that of true pancreatic glucagon in spite of the fact that it cross reacts in the radioimmunoassay with antibodies to glucagon.

5849 CYSTIC FIBROSIS OF THE PANCREAS IN ADOLESCENCE AND ADULTHOOD. *(E.)* Gracey, M. (Royal Child. Hosp., Melbourne, Australia) and C. M. Anderson. *Aust Ann Med* 18(2):91-101, 1969.

5850 DIABETES INSIPIDUS. *(Rev.)(E.)* Utiger, R. (Washington U. Sch. Med., St. Louis, Mo.). *JAMA* 207(9):1699-1703, 1969.

5851 INTRAVASCULAR COAGULATION AND HEMORRHAGIC PANCREATIC NECROSIS IN A PATIENT WITH CARCINOID DISEASE. [CASE REPORT] *(E.)* Johansson, S. A. (Karolinska Hosp., Stockholm, Sweden). *Acta Med Scand* 185(6):543-544, 1969.

5852 CURRENT CONCEPTS. PANCREATIC EXTRACTS. *(Rev.)(E.)* Littman, A. (VA Hosp., Hines, Ill.) and D. H. Hanscom. *New Eng J Med* 281(4):201-204, 1969.

5853 ZOLLINGER-ELLISON SYNDROME IN ECTOPIC ULCERATIVE PANCREAS TUMOR IN THE LIVER. [CASE REPORT] *(Ger.)* Zakelj, V. (Med. Fac., Ljubljana, Yugoslavia), I. Matko and D. Ferluga. *Med Welt* 20(30):1642-1648, 1969.

5854 MEDIASTINAL PSEUDOCYST OF THE PANCREAS. [CASE REPORT] *(E.)* Weidmann, P. (Med. U. Polyclin., Zürich, Switzerland), W. Rutishauser, W. Siegenthaler and Å. Senning. *Amer J Med* 46(3):454-459, 1969.

5855 POLYSACCHARIDE OF A MUCOID *E. COLI* ISOLATED FROM A PATIENT WITH CYSTIC FIBROSIS. *(E.)* Linker, A. (VA Hosp., Salt Lake City, Utah) and L. R. Evans. *Nature* 218(5142):774-775, 1968.

5856 REVIEW OF PANCREATIC DISEASE. *(E.)* Anderson, M. A. (Med. Coll. Ohio, Toledo). *Surgery* 66(2):434-449, 1969.

5857 CYSTIC FIBROSIS. RECENT ADVANCES IN UNDERSTANDING OF ITS PATHOGENESIS, DETECTION OF CARRIERS AND IMPROVED PROGNOSIS. *(Rev.)(E.)* Talamo, R. C. (Harvard Med. Sch., Boston, Mass.). *Med Times* 97(2):139-145, 1969.

5858 HORMONE-SECRETING TUMOURS OF THE PANCREAS. *(E.)* Bouchier, I. A. D. (Royal Free Hosp., London, England). *Brit J Clin Pract* 23(7):265-269, 1969.

5859 THE CONTRIBUTION OF SCINTIGRAPHIC FINDINGS IN THE DIAGNOSIS OF

**PANCREATIC DISEASES.** *(It.)* Colella, A. C. (Inst. Radiol., U. Rome, Italy), F. Pigorini and A. Tomiselli. *Nunt Radiol* 33(Suppl.):461-470, 1967.

5860 **ULCEROGENIC TUMOR OF THE PANCREAS.** *(E.)* Ellison, E. H. and S. D. Wilson. *Progr Clin Cancer* 3:225-244, 1967.

5861 **PSEUDOCYST OF THE PANCREAS AS A MANIFESTATION OF THE BATTERED-CHILD SYNDROME. REPORT OF A CASE.** *(E.)* Kim, T. (Freedmen's Hosp., Washington, D. C.) and M. E. Jenkins. *Med Ann DC* 36(12):664-666, 1967.

5862 **PANCREATIC FISTULA FOLLOWING PARTIAL GASTRECTOMY IN DUODENAL ULCER.** *(It.)* Poma, G. (S. Maria Nuova Gen. Hosp., Florence, Italy). *Osped Ital Chir* 16(5):499-517, 1967.

5863 **PANCREAS SCINTISCAN WITH $^{75}$Se-SELENIUM METHIONINE.** *(Ger.)* Deininger, H. K. (City Hosp., Heilbronn, Germany) and H. J. Sielaff. *Fortschr Roentgen* 107(3):353-360, 1967.

5864 **THE ENDOCRINE SYNDROMES ASSOCIATED WITH PANCREATIC ISLET CELL TUMORS.** *(Turk.)* Devrim, S. (Med. Fac., Istanbul U., Turkey) and O. Şaşmaz. *Tip Fak Mec* 31(3):547-563, 1968.

5865 **HYDATID CYST OF THE PANCREAS. [CASE REPORT]** *(Turk.)* Özgür, M. (Istanbul U., Turkey), S. Bekem, A. Bozbora and D. Budak. *Tip Fak Med* 31(3):522-527, 1968.

5866 **A REAPPRAISAL OF REMOVAL OF NINETY-FIVE PER CENT OF THE DISTAL PORTION OF THE PANCREAS.** *(E.)* Child, C. G. III (U. Michigan Med. Ctr., Ann Arbor), C. F. Frey and W. J. Fry. *Surg Gynec Obstet* 129(1):49-56, 1969.

5867 **ADENOCARCINOMA OF BRONCHIAL EPITHELIUM ARISING IN A RETROPERITONEAL BENIGN CYSTIC TERATOMA.** *(E.)* Lie, J. T. (Royal Melbourne Hosp., Australia). *Cancer* 24(3):577-580, 1969.

5868 **COMPLETE RUPTURE OF PANCREAS FOLLOWING CLOSED ABDOMINAL TRAUMA.** *(It.)* Pierossi, L. (S. S. Giacomo Cristoforo Munic. Hosp., Italy) and D. Martelli. *Osped Ital Chir* 16(5):483-498, 1967.

5869 **UTILIZATION OF ALIMENTARY PROTEIN IN PANCREATECTOMY.** *(Ger.)* Kasper, H. (Med. Clin., Justus Liebig U., Giessen, Germany) and H. A. Kühn. *T Gastroent* 12(1):18-31, 1969.

5870 **A CASE OF PANCREATIC ADENOMA AND DOUBLE DUODENAL ULCER.** *(It.)* Porta, G. C. (S. Gerardo Tintori Hosp., Monza, Italy) and U. d'Alonzo. *Chirurgia* 22(5):286-287, 1967.

5871 **SPONTANEOUS INTRAPERITONEAL RUPTURE OF A PAPILLARY CYSTADENOMA OF THE PANCREAS–A CASE REPORT.** *(E.)* Wynne, J. M. (U. Coll. Hosp., London, England). *S Afr Med J* 41(45):1173-1175, 1967.

5872 ***IN VIVO* PENETRATION OF ANTIBIOTICS INTO SPUTUM IN CYSTIC FIBROSIS.** *(E.)* Saggers, B. A. (Queen Mary's Hosp. Child., Carshalton, England) and D. Lawson. *Arch Dis Child* 43(230):404-409, 1968.

5873 **AMYLASE IN THE BLOOD OF PATIENTS WITH PANCREATIC CYSTS.** *(Rus.)* Gluskina, V. M. (Kirov Inst. Postgrad. Med., Leningrad, USSR). *Khirurgiia (Moskva)* 44(3):138-140, 1968.

5874 **ANNULAR PANCREAS IN COMBINATION WITH ULCEROUS STENOSIS OF THE DUODENUM.** *(Rus.)* Salimkhanov, T. A. (Dagestan Med. Inst., Makhachkala, USSR). *Khirurgiia (Moskva)* 44(3):137-138, 1968.

5875 **OBSERVATIONS IN CYSTIC FIBROSIS OF THE PANCREAS. III. PULMONARY LESIONS.** *(E.)* Esterly, J. R. (Johns Hopkins U. Sch. Med., Baltimore, Md.) and E. H. Oppenheimer. *Johns Hopkins Med J* 122(2):94-101, 1968.

5876 **INAPPROPRIATE VASOPRESSIN SECRETION AND CARCINOMA OF THE PANCREAS. [CASE REPORT]** *(E.)* Marks, L. J. (VA Hosp., Boston, Mass.), B. Berde, L. A. Klein, J. Roth, S. R. Goonan, D. Blumen and D. C. Nabseth. *Amer J Med* 45(6):967-974, 1968.

5877 **A STUDY OF PANCREATIC EXOCRINE FUNCTION IN PATIENTS WITH BILLROTH II GASTRECTOMIES. II. THE EFFECTS OF STIMULATION WITH DEXTRIN-GLUCOSE.** *(It.)* Condorelli, S. (Inst. Gen. Clin. Med., U. Rome, Italy), L. Pisano, G. Lorentz, R. Gusmano, G. Spanò, D. Lombardi, G. Bellisario and F. Patanè. *Boll Soc Ital Biol Sper* 44(5):375-377, 1968.

5878 **A STUDY OF PANCREATIC EXOCRINE FUNCTION IN PATIENTS WITH BILLROTH II GASTRECTOMIES. III. THE EFFECTS OF STIMULATION WITH CREAM ON AN EMPTY STOMACH.** *(It.)* Pisano, L. (Inst. Gen. Clin. Med., U. Rome, Italy), G. Spanò, S. Condorelli, D. Lombardi, G. Lorentz, R. Gusmano, F. Patanè and S. Fabri. *Boll Soc Ital Biol Sper* 44(5):377-379, 1968.

5879 **A STUDY OF PANCREATIC EXOCRINE FUNCTION IN PATIENTS WITH BILLROTH II GASTRECTOMIES. IV. THE EFFECTS OF HCl STIMULATION ON AN EMPTY STOMACH.** *(It.)* Pisano, L. (Inst. Gen. Clin. Med., U. Rome, Italy), G. Lorentz, G. Spanò, S. Condorelli, R. Gusmano, D. Lombardi, G. Bellisario and F. Patanè. *Boll Soc Ital Biol Sper* 44(5):379-381, 1968.

5880 **A STUDY OF PANCREATIC EXOCRINE FUNCTION IN PATIENTS WITH BILLROTH II GASTRECTOMIES. V. THE EFFECTS OF STIMULATION**

WITH SECRETIN ADMINISTERED INTRAVENOUSLY. *(It.)* Spanò, G. (Inst. Gen. Clin. Med., U. Rome, Italy), S. Condorelli, R. Gusmano, G. Lorentz, D. Lombardi, L. Pisano, G. Bellisario and F. Patanè. *Boll Soc Ital Biol Sper* 44(5):382-384, 1968.

See also: 5102,5259,5264,5266,5413,5418,5422,5464

### 5881 INCREASED ENTERIC FORMATION OF HISTAMINE IN CHRONIC PANCREATITIS.

*(E.)* Sjaastad, O. (Rikshospitalet, Oslo, Norway). *Acta Med Scand* 186(1-2):125-133, 1969.

Patients with chronic pancreatitis, in contrast to patients with acute pancreatitis, were found to have increased excretion of conjugated histamine in urine (7 of 8 patients). A close correlation existed between the amounts of conjugated histamine in urine and the concentration of histamine-like activity in the feces. Fecal samples from patients, in contrast to samples from controls, possessed a capacity to form histamine-like activity from L-histidine and N-acetyl-L-histidine. Sterile filtrates possessed no such ability. Feces from patients had a significantly lower pH than control feces. This may be a predisposing factor for the observed histamine formation, since the bacterial L-histidine dicarboxylase has a low pH optimum. The excess conjugated histamine in urine in these patients with chronic pancreatitis and steatorrhea originates in the lumen of the gastrointestinal tract.

### 5882 CHANGES IN THE VOLUME OF CIRCULATING BLOOD IN ACUTE PANCREATITIS.

*(Rus.)* Lashchevker, V. M. (Odessa Munic. Clin. Hosp. No. 1, USSR). *Khirurgiia (Moskva)* 45(4):128-132, 1969.

Changes in the volume of the circulating blood and its constituents were studied in 52 patients with acute pancreatitis. Dextran was used as an indicator. By the first or second day of the disease, circulating blood volume was normal in 10 patients, increased in 1, and reduced in 41. The decrease in circulating plasma volume was significant in 47 patients: in 23 the plasma deficiency was 25-35%. Thirty-two patients had an increased hematocrit. The reduction in circulating blood volume and hemoconcentration were associated with the loss of plasma into the serous cavities and the retroperitoneal cellular tissue. Circulating blood volume returned to normal values 5-7 days after onset of treatment. Transfusions of plasma, blood, and high molecular blood substitutes in significant amounts ($>$ 1000-1500 ml/day) are suggested.

### 5883 A COMPARATIVE EVALUATION OF SOME ETIOLOGICAL FACTORS IN THE DEVELOPMENT OF ACUTE PANCREATITIS.

*(Rus.)* Protsenko, V. A. (Crimean Med. Inst., Simferopol', USSR) and K. D. Toskin. *Biull Eksp Biol Med* 65(3):47-50, 1968.

Acute interstitial pancreatitis which developed into pancreatic sclerosis was induced in 7 dogs by ligating their main and accessory pancreatic ducts. After surgery their serum lipase increased but, by the end of the 2nd week after surgery, had returned to their initial values. Gravel was found in the head and tail of the pancreas in 2 cases. Ligation of only the main duct produced only a transitory increase in serum lipase levels; no visible changes were found in the pancreases of these 2 dogs. Regions of stearin necrosis, acute pancreatic edema, and very high serum lipase levels were produced by ligation of the main pancreatic duct and introduction of 0.5 ml of bile into its lumen. Duodenal stasis, atony of Oddi's sphincter, and reflux of the intestinal contents into the pancreatic duct were produced in 15 dogs by resecting the pylorus, bringing the duodenal stump through the abdominal wall and compressing it. A variety of destructive changes developed in the pancreases of these animals; they were accompanied in all cases by high blood lipase activities about 6 hr after surgery. Pancreatitis and pancreatic necrosis developed rapidly in 10 dogs in which duodenal stasis was produced as in the previous group and pancreatic function was stimulated by injections of 1% pilocarpine. Serum lipase values in this group of animals were even higher than in those in which bile had been introduced into the pancreatic duct. Duodenal stasis and creation of a cholecystojejunal anastomosis produced pancreatitis which, in some animals, was accompanied by suppuration and abscess formation due to reflux of the duodenal contents into the pancreatic duct. These experiments show that prolonged canalicular hypertension, and the reflux of bile and the duodenal contents into the pancreatic ducts all produce acute pancreatitis. The most acute form occurred when all 3 of these factors were combined with stimulation of pancreatic function.

### 5884 EXPERIMENTAL ACUTE PANCREATITIS IN DOGS. III. THE NATURE OF THE PHOSPHOLIPASE ACTIVITY OF PANCREATIC EXUDATE.

*(E.)* Hagen, P. O. (State Hosp., Oslo, Norway), E. Ofstad and E. Amundsen. *Scand J Gastroent* 4(1):81-88, 1969.

Acute experimental pancreatitis was induced in dogs by the injection of a mixture of cholates and trypsin into the main pancreatic duct. Exudate was collected directly from the pancreas at intervals after induction of pancreatitis. The collected exudates were immediately centrifuged at 1300 g for 10 min at 5C and the supernatant stored at -20C until used. Sixty min after induction of the pancreatitis the exudate contained 7.51 mg deoxycholate/ml crude exudate. This dropped to 3.04 in 125 min, further dropped to 1.12 in 220 min, to 1.06 in 330 min and to 0.54 in 445 min. After dialysis of the crude exudate against 0.1 M Tris HCl, pH 7.5 for 24 hr, only small amounts (0.02 to 0.01) of deoxycholate could be detected. All exudate portions were found to contain phosphatidyl-choline-hydrolyzing activity. Most of this activity was due to phospholipase A.

### 5885 RESPIRATORY COMPLICATIONS OF ACUTE PANCREATITIS. [CASE REPORT]

*(E.)* Finley, J. W. (Providence Hosp., Seattle, Wash.). *Amer Surg* 35(8):591-598, 1969.

### 5886 A CASE OF TRANSIENT DIABETES MELLITUS IN CONNECTION WITH ACUTE PANCREATITIS.

*(E.)* Nielsen, O. S. (Odense City Hosp., Denmark) and E. Simonsen. *Acta Med Scand* 185(5):459-461, 1969.

### 5887 SUBTOTAL PANCREAS RESECTION IN PATIENTS WITH CHRONIC PANCREATITIS.

*(Ger.)* Fischer, R. (Munic. Hosp., Stuttgart, Germany), G. Wimhoefer and V. Heugel. *Aerztl Forsch* 23(9):300-303, 1969.

5888 SUBTOTAL SEQUESTRATION OF PANCREAS FOLLOWING ACUTE PANCREATITIS. *(Cz.)* Mašek, K. (Milit. Hosp., České Budějovice, Czechoslovakia). *Rozhl Chir* 47(1):15-24, 1968.

5889 LABORATORY TESTS AND NEW DRUGS IN CASES OF ACUTE PANCREATITIS. *(Fr.)* De Saint Steban, J. and C. Wenisch. *Clinique (Paris)* 63(639): 29-30, 1968.

5890 DRAINAGE OF THE BILE DUCTS WITH THE HELP OF A CHOLECYSTOSTOMY DURING ACUTE PANCREATITIS. *(It.)* Moncalvi, S. (Inst. Hosp., Milan, Italy), S. Montel and M. Porati. *Chir Ital* 19(6):1337-1344, 1967.

5891 PRELIMINARY NOTE ON THE USE OF DEEP SELECTIVE HYPOTHERMIA IN TREATING ACUTE EXPERIMENTAL PANCREATITIS. *(It.)* Rodolico, G. (Inst. Clin. Gen. Surg. Ther. Surg., U. Catania, Italy), M. Zanghì, G. Romeo, F. Finocchio, N. Alberti, S. Arcerito and S. Russo. *Chir Pat Sper* 15(4):564-582, 1967.

5892 A STUDY OF THE TREATMENT OF ACUTE EXPERIMENTAL PANCREATITIS WITH DEEP SELECTIVE HYPOTHERMIA AND ENZYMIC INHIBITORS. *(It.)* Rodolico, G. (Inst. Clin. Gen. Surg. Ther. Surg., U. Catania, Italy), G. Romeo, F. Finocchio, M. Accardo, G. Donzelli, N. Alberti and S. Arcerito. *Chir Pat Sper* 15(4):626-648, 1967.

5893 SURGICAL FORMS OF CHRONIC PANCREATITIS. *(Fr.)* Salembier, Y. (Regional Cent. Hosp., Lille, France). *Lille Med* 12(8):940-944, 1967.

5894 DRUG TREATMENT OF CHRONIC PANCREATITIS. *(Fr.)* Paris, J. C. and P. Merveille. *Lille Med* 12(8):936-939, 1967.

5895 ACUTE HEMORRHAGIC PANCREATITIS IN CHILDREN. ETIOPATHOGENIC ASPECTS OF ONE CASE. *(Fr.)* Lemoine, P. (Nantes, France), A. Foure and J. M. Davy. *Ouest Med* 20(18):1015-1021, 1967.

5896 ACUTE PANCREATITIS: CLINICAL-THERAPEUTIC STUDIES. *(It.)* Priola, I. (Maria Vittoria Hosp., Turin, Italy). *Minerva Chir* 23(2):93-98, 1968.

5897 SOME THERAPEUTIC ASPECTS IN EXPERIMENTAL BILIARY PANCREATITIS. *(Sp.)* Salazar, J. R. (Natl. U. Córdoba, Argentina), C. A. Sosa Gallardo, A. A. Ferraris, C. B. Villalba and R. De La Sota. *Rev Fac Cienc Med Cordoba* 25(1):7-16, 1967.

5898 TRANSPAPILLARY DRAINAGE AND POSTOPERATIVE PANCREATITIS. *(It.)* Peracchia, A. (2nd Inst. Gen. Surg. Clin. Surg. Ther., U. Parma, Italy) and P. Bobbio. *Minerva Chir* 23(8):402-405, 1968.

5899 PANCREATIC CALCULI, CHRONIC PANCREATITIS AND FIBROSIS OF THE PANCREAS. [CASE REPORT] *(Dut.)* Janssen, A. E. (Sophia Child. Hosp., Rotterdam, Netherlands). *Nederl T Geneesk* 112(6):268-272, 1968.

5900 STEROID PANCREATITIS. *(Rus.)* Poddubnaia, I. V. (Inst. Exp. Clin. Oncol., Acad. Med. Sci., Moscow, USSR) and N. N. Pokrovskaia. *Ter Arkh* 40(5): 113-117, 1968.

5901 TRAUMATIC PANCREATITIS AND PSEUDOCYST IN CHILDHOOD. *(E.)* Othersen, B. H. Jr. (Med. Coll. South Carolina, Charleston), F. T. Moore and E. T. Boles. *J Trauma* 8(4):535-546, 1968.

5902 CLINICAL OBSERVATIONS OF ACUTE PANCREATITIS. *(Kor.)* Choi, M. B. (Kyungpook Natl. U., Sch. Med., Taegu, Korea). *Korean J Intern Med* 12(2):83-89, 1969.

See also: 5258,5260,5265,5266

# LIVER AND BILIARY TRACT
## GENERAL

5903 **STUDIES ON THE PATHOGENESIS OF HEPATOLENTICULAR DEGENERATION. II. CYTOCHEMICAL METHODS FOR THE LOCALIZATION OF COPPER.** *(E.)* Lindquist, R. R. (Harvard Med. Sch., Boston, Mass.). *Arch Path (Chicago)* 87(4):370-379, 1969.

Experience with some modification of 4 previously described methods (rubeanic acid, diethyldithiocarbamate, dimethylaminobenzylidene rhodanine, and silver sulfide) and 3 additional methods (diphenylcarbazone, alizarin blue, and thiocarbohydrazide-osmium black) for the cytochemical localization of copper in a wide variety of human and experimental tissue is presented. The chemical basis for each method is considered and the tissue specificity and sensitivity for copper described. The limitations and sources of possible error are pointed out. The choice of methods rests with the investigator, but at least 2 should be used simultaneously. Proper controls should be used for the recognition of tissue constituents and pigments easily confused with the staining product. Dimethylaminobenzylidene rhodanine and alizarin blue S at pH 2.5 to 4.0 have proved useful in a large variety of normal, pathological and experimental mammalian tissues.

5904 **REMARKS CONCERNING THE RESIDUAL BINDING ABILITY OF ALBUMIN IN NEONATAL JAUNDICE.** *(It.)* Cislaghi, G. U. (Dept. Puericulture, U. Milan, Italy) and L. A. Magni. *Minerva Pediat* 21(7):259-261, 1969.

The dosage of the residual binding ability of albumin for bilirubin, by the method of 2,4-hydroxybenzeneazobenzoic acid (HBABA) described by Waters and Porter, was performed on serum samples of 43 icteric newborns, noting the extent of bilirubinemia at the same time. While in *in vitro* experiments an exact correlation between blood bilirubin and residual binding ability of albumin was found, *in vivo* experiments showed no such correlation. The residual binding ability was very low (less than 20-30%) in only 1 case with hypoproteinemia. In all the other cases it was elevated, with blood bilirubin being lower than levels considered to be dangerous. It is concluded that the determination of the residual binding ability of albumin by this method does not give useful information for the determination of the severity of neonatal jaundice.

5905 **FREQUENCY AND SOME CHARACTERISTICS OF COLON AND RECTUM CANCER.** *(Ser.)* Bakran, I. Jr. (Med. Fac., Zagreb, Yugoslavia), S. Knežević and P. Nola. *Lijecn Vjesn* 91(4):401-408, 1969.

Of 74,991 patients treated between January 1st 1956 through December 31st, 1966, there were 446 patients (225 males and 221 females) with cancer of the large bowel, or 0.6%. Most (143) were in the sixth decade of life (32.0%). In 271 (60.8%) the rectum was involved, in 60 (13.5%) sigmoid colon, in 36 (8.1%) the left half, in 29 (6.4%) the right half of large bowel, and in 50 patients (11.2%) the cecum. Seven patients (1.6%) had multiple colon cancer. The time elapsed between onset of the disease and the hospitalization was 9.2 months when the rectum was involved, 8.9 months in carcinoma of sigmoid colon, 6.9 months in cancer of the left half of large bowel, 4.4 months in carcinoma of the right half, and 7.9 months in carcinoma of the cecum. Symptoms and signs did not differ significantly from those described by other authors. Histological findings were almost identical with those presented by other authors. In 85.3% adenocarcinoma of the large bowel was found. The operability rate was poor: cancer of the rectum was operable in 43.6%, of the sigmoid colon in 30.2%, of the left half of large bowel in 40.0%, and of the right half of large bowel in 50.9%.

5906 **OBSTRUCTION OF THE INFERIOR VENA CAVA IN THE HEPATIC PORTION AND THE HEPATIC VEINS. REPORT OF EIGHT CASES AND REVIEW OF THE JAPANESE LITERATURE.** *(E.)* Nakamura, T. (Tohoku U. Sch. Med., Sendai, Japan), S. Nakamura, T. Aikawa, O. Suzuki, A. Onodera and N. Karoji. *Angiology* 19(1):479-498, 1968.

Obstruction of the hepatic veins and/or the inferior vena cava in the hepatic portion of 8 patients (5 men and 3 women) is reported in which the diagnosis was made clinically by venous catheterization. One case belonged to the acute type, and the other 7 to the chronic type. In the acute case, obstruction was due to liver carcinoma; in the chronic cases the cause of the obstruction was not clear. The main clinical signs in the chronic cases were dilation of the superficial veins in the abdominal wall and in the lumbar region, hepatomegaly, splenomegaly and esophageal varices. The BSP test was abnormal in all patients. Venous catheterization showed obstruction of the inferior vena cava in the hepatic portion in all patients and obstruction of the hepatic veins in 6 of the 7 chronic cases. The course of the 7 chronic cases is very long: 6 of the 7 cases are alive 2-22 yr after the onset. The other cases developed liver carcinoma and died 10 yr after admission. Review of the Japanese literature confirmed these clinical findings.

5907 **FURTHER OBSERVATIONS ON HYPOGLYCAEMIA IN HEPATOCELLULAR CARCINOMA.** *(E.)* McFadzean, A. J. S. (Dept. Med., U. Hong Kong) and R. T. T. Yeung. *Amer J Med* 47(2):220-235, 1969.

Of 142 consecutive patients with hepatocellular carcinoma 38 (27%) were found to have hypoglycemia. Two distinct forms of tumor and 2 distinct forms of hypoglycemia were recognized. In 124 of the 142 patients (87%), (type A) there was rapid wasting and profound muscle weakness and the tumor was rapidly growing and poorly differentiated. Hypoglycemia, which developed in 17% within two weeks of death, was associated with a slow decrease in blood glucose on fasting and was readily controlled. In the remaining 18 patients (13%) (type B), the tumor was slow growing and well differentiated, and neither wasting nor muscle weakness were features. Hypoglycemia, which developed in all within 2-10 months of death, was associated with a precipitous fall in blood glucose levels on fasting and was difficult to control. In both forms the rate at which i.v. injected glucose disappeared was similar to that encountered in control subjects but the maximum decrease in serum inorganic phosphorus was subnormal, and during oral glucose tolerance tests the insulin responses were subnormal. In type A patients hypoglycemia occurred solely as the consequence of a progressive increase in demand for glucose by the tumor coupled with a progressive reduction in supply which was in part due to progressive encroachment on the residual liver tissue by the tumor and in part to undernutrition. In type B patients, however, another factor in addition to the metabolic diversion of glucose was superimposed many months before death. In all but 1 patient there was a progressive reduction in the response to glucagon until it was no more than a transient slowing of a precipitous fall in the blood glucose level. Yet at necropsy there was abundant glycogen in the residual liver tissue which, like that in both types of tumor, was abnormally stable on storage. But glycogenolysis resulted on storage with normal liver tissue. An acquired glycogenosis was the additional factor responsible for the differences in the 2 forms of hypoglycemia.

5908 THE SIGNIFICANCE OF HYALINE NECROSIS IN LIVER BIOPSIES. *(E.)* Kern, W. H. (U. Southern California Sch. Med., Los Angeles), W. P. Mikkelsen and F. L. Turrill. *Surg Gynec Obstet* 129(4):749-754, 1969.

A study of 263 liver biopsies (168 wedge and 95 needle) demonstrated hyaline necrosis in 35 patients (25 wedge and 10 needle biopsy specimens). In most instances, only a few Mallory bodies were present, and the pattern in one-half of the patients was morphologically not characteristic. The association of hyaline changes with cirrhosis, fatty metamorphosis, leukocytic infiltration, and centrilobular sclerosis was reviewed. The clinical correlation indicates that the changes are significantly associated with a poor prognosis, even if they are limited to few cells and are morphologically not typical. Thirty-seven percent of the patients with demonstrable Mallory bodies died during the hospital stay, as compared to only 9% of the 228 patients in whom hyaline changes were not demonstrated. The demonstration of hyaline bodies is particularly important in patients undergoing portacaval shunt procedures for cirrhosis and bleeding esophageal varices. The presence of Mallory bodies indicates a poor prognosis for these patients, and a needle biopsy of the liver should be made before the operation whenever acute hyaline necrosis is clinically suspected.

5909 MITOCHONDRIAL ANTIBODY TEST–A CLUE TO DIAGNOSIS OF PRIMARY BILIARY CIRRHOSIS. *(E.)* Deodhar, S. D. (Cleveland Clinic, Ohio), A. Yazbek, E. Achkar and C. H. Brown. *Cleveland Clin Quart* 36(2):95-104, 1969.

The results of using the immunofluorescent mitochondrial antibody test on the sera of 9 patients with primary biliary cirrhosis were compared to those obtained on the sera of 46 patients with other hepatic abnormalities. In the test, fresh frozen rat kidney is treated with the patient's serum and then exposed to fluorescent antihuman $\gamma$-globulin. Seven of the 9 patients with primary biliary cirrhosis had positive tests, none of which were affected by steroid or immunosuppressive therapy. One patient each with lupoid hepatitis, extrahepatic obstruction and secondary biliary cirrhosis, and intrahepatic granulomatous disease of unknown cause had false positive tests.

5910 A COMPARISON BETWEEN THE RESULTS OF SCINTILLATION SCANNING AND ANATOMICO-PATHOLOGICAL FINDINGS IN LIVER DISEASES. *(It.)* Bruscagnin, G. (United Munic. Hosp. Venice, Italy) and M. Bonara. *G Veneto Sci Med* 23(5-6): 217-232, 1969.

The results of hepatic scintillation scanning with $^{198}$Au, $^{131}$I-RB and $^{99}$Tc$^{m}$SC in 73 patients were compared with anatomico-pathological findings. The problem is the differential scintigraphic diagnosis between multifocal alterations of either the cirrhotic or the neoplastic type. While various distinguishing characteristics (shape, dimensions, site of cold areas, variations in the volume of the liver) do not seem to be conclusively diagnostic, it was found that the presence of radioactivity in the spleen and at times of the osseous medulla, is much more common in cirrhotic than in neoplastic involvement. These phenomena, which occur for the most part with colloidal radioactive indicators ($^{198}$Au, and less selectively with $^{99m}$Tc colloidal sulfur), are associated with the abnormal functioning of the splenic and medullary reticulohistiocytic system that is stimulated in cases of diffuse miopragia of the hepatic parenchyma.

5911 PYOGENIC LIVER ABSCESS. *(E.)* Butler, T. J. (Southmead Hosp., Bristol, England) and C. F. McCarthy. *Gut* 10(5):389-399, 1969.

A retrospective analysis of 48 patients with liver abscess in the 10-yr period 1957-66 is presented. The patients were divided into 2 groups: 1 with multiple abscesses accompanied by some other acute abdominal pathology, and the other (18 men and 13 women, 34-77 yr old) in which the abscesses were solitary with a chronic presentation. A study of the second group showed that abscesses occurred primarily in the right lobe of the liver with two-thirds appearing in this lobe alone. The most striking clinical feature was the insidious onset of the disease process, so much so that many patients were uncertain of the beginning of the illness. Methods of investigation included hematological studies, liver function tests, liver biopsy, serum vitamin B$_{12}$ estimations, ultrasonic and isotope scanning. Falling serum albumin levels and increased serum levels of vitamin B$_{12}$ were the most useful diagnostic tools. All patients received broad-spectrum antibiotics. Drainage, including resection of the left lobe, were performed in 22 patients and offered the only chance of survival. Early diagnosis and localization by ultrasonic or isotope techniques and the use of the appropriate antibiotic may reduce the present mortality due to liver abscess. In this series, 17 of the 31 patients died.

5912 LYSOSOMAL ENZYME ACTIVITY IN HUMAN LIVER IN RELATION TO THE AGE OF THE PATIENT AND IN CASES WITH OBSTRUCTIVE JAUNDICE. *(E.)* Björkerud, S. (Sahlgrenska Hosp., Göteborg, Sweden), P. Björntorp and T. Schersten. *Scand J Clin Lab Invest* 20(2): 224-230, 1967.

Basal (latent) and maximal (induced by Triton X-100) activity of the enzymes acid phosphatase, aryl sulphatase, beta-glucuronidase, and cathepsin was determined in homogenate of human liver, obtained at biopsy from 23 patients (8 males, 15 females; 19-70 yr) operated on for uncomplicated gallbladder disease and from 12 patients (7 males, 5 females; 20-80 yr) with obstructive jaundice caused by common bile-duct stones. A significant positive correlation with age was found for maximal activity of acid phosphatase and aryl sulphatase. The ratio between maximal and basal activity (an expression of the degree of retention of the enzymes to the lysosomes) of aryl sulphatase was significantly decreased with increasing age. In cholestatic liver specimens the maximal activity of the 4 enzymes was not significantly different from that of normal human livers. In cholestatic liver the degree of retention of acid phosphatase and cathepsin activity to the lysosomes was significantly decreased. Cholic acid and bilirubin added *in vitro* to homogenate in concentrations assumed to be within physiological limits, caused a release of lysosomal enzymes. The retention of bile products in obstructive jaundice may cause the release of hydrolytic enzymes from liver lysosomes, which could be responsible for the common finding of scattered cellular necrosis in the liver in cholestatic conditions.

5913 **CONJUGATED AND UNCONJUGATED BILIRUBIN DETERMINED IN ICTERIC SERA BY DIRECT SPECTROPHOTOMETRY.** *(E.)* Fog, J. (Rikshospitalet, Oslo, Norway) and A. F. Bakken. *Scand J Clin Lab Invest* 20(1):88-92, 1967.

The outstanding yellow pigments in an icteric serum seem to be bilirubin, its conjugates, and oxyhemoglobin. The percentage of unconjugated bilirubin may be calculated when absorbances are read in a spectrophotometer at 460, 440, and 415 mμ. Icteric serum is diluted with an isotonic solution of sodium bicarbonate (1.3%) to adjust to desirable 8.3 pH. An approximate dilution to readable absorbances is sufficient for determining the ratio between bilirubin and its conjugates. The amount of unconjugated bilirubin is calculated from the total bilirubin determined as azopigment. The rest is assumed to be conjugates of bilirubin. The method is intended for sera containing more than 5 mg bilirubin per 100 ml serum because of the errors due to turbidity which is introduced with normal and only slightly icteric sera. The method eliminates error due to oxyhemoglobin.

5914 **LONG-TERM INTRAPORTAL INFUSION OF CHEMOTHERAPEUTIC AGENTS VIA THE UMBILICAL VEIN FOR MALIGNANT NEOPLASMS OF THE LIVER.** *(Rus.)* Ostroverkhov, G. E. (N. I. Pirogov 2nd Moscow Med. Inst., USSR) and A. D. Nikol'skii. *Vop Onkol* 14(5):26-34, 1968.

Long-term intraportal infusions of phenylalanine mustard, thiophosphamide, and 5-fluorouracil were given for 12-30 days without interruption to 46 patients (27 men and 19 women, aged 37-64 yr) with primary liver cancer (8 cases), hepatic sarcomas (2 cases), and metastases into the liver (36 cases). In all cases the diagnosis had been confirmed by histological examination of material biopsied at laparotomy and had been documented with angiographic studies. The doses employed were 750 mg/day of 5-fluorouracil dissolved in 500-700 ml of 5% glucose and 0.01 g/day of phenylalanine mustard or thiophosphamide in 1.5 liters of physiological saline. No complications occurred during infusion. Two patients with primary liver cancer are still alive 14 months after receiving these infusions. The mean survival time was 9 months. Improvements or remissions were obtained in only 14 of the 36 patients with metastases into the liver. Two illustrative case reports are presented.

5915 **INCLUSION BODIES IN TWO PRIMARY CANCERS OF THE HUMAN LIVER.** *(Fr.)* Quenum, C. (Inst. Med., Dakar, Senegal) and P. D. N'Diaye. *Bull Soc Med Afr Noire Lang Franc* 13(3):561-564, 1968.

In 2 cases (males, 45 and 60 yr old) of primary liver carcinoma inclusion bodies were observed. The tumors presented extensive necrobiosis. The inclusions were mainly found in intracytoplasm and at times in the interstices of the neoplastic cells. They may be found singly or in great numbers and the cytoplasm of a single cell has shown 10 inclusions, usually round in shape with a diameter of 1-20 mμ; exceptionally larger ones, reach a diameter of 50 mμ with an irregular outline. Reactions of the inclusions to Mann, Weigert and P.A.S. are orange, rose and pale rose, resp. Biliary pigment reaction to Stein was negative. Analyzing the meaning of these inclusion bodies it is suggested that they are a manifestation of tumoral hepatocyte metabolic troubles as noticed in some tumors, spontaneous or experimental, of the mouse and rat.

5916 **A LIVER FUNCTION TEST USING $S^{35}$-LABELED METHIONINE IN SEVERE INFECTIOUS SYNDROMES.** *(Rum.)* Onesciuc, I. (Ctr. Nuclear Med., Cluj, Romania), M. Gidaly and I. Gavrila. *Med Intern (Bucur)* 20(7):801-808, 1968.

The half-life of $^{35}$S-methionine was measured in the blood of 23 patients with acute infectious of the nervous system, septicemia, gastrointestinal infections, viral hepatitis, and miscellaneous infections and in 8 patients during their recovery. The half-life of $^{35}$S was longer than normal in 20 of the 23 patients studied, confirming that liver function is often impaired in serious infections. There was considerable variation in the half-life between individual patients and between groups of patients, but it was longest in patients with infections of the nervous system (meningitis, meningoencephalitis, encephalitis, and ascending polyradiculoneuritis). The extent to which the half-life was prolonged was of some prognostic value since it was more prolonged in patients who later died. No correlation was found between the half-life of $^{35}$S-labeled methionine and SGOT or SGPT activities. This is because the results of half-life measurements are a reflection of changes in liver cell function while transaminase values are a reflection of the extent of hepatic cytolysis.

5917 **THE INTRAPERITONEAL TRANSFUSION OF THE FETUS IN THE TREATMENT OF Rh ISO-IMMUNIZATION. (THREE CASES).** *(Fr.)* Hartemann, J. (Med. Inst., Nancy, France), F. Streiff, P. Landes, B. Genetet, G. Brunel and P. Vert. *Gynec Obstet (Paris)* 67(4):411-424, 1968.

Reports are presented for 3 cases of Rh isoimmunization which were submitted to 4 fetal transfusions by the Liley method. The 1st case, 29 yr old, with a history of fetal jaundice at the 3rd pregnancy and delivery at 7½ month of an infant with anasarca at the 4th pregnancy, was hospitalized at the 32nd week of the 5th pregnancy with anasarca. A fetal transfusion was performed. Three weeks later the fetal movements and heart beat were no longer perceived. An abortion was induced by injecting 40 ml of radioselecton into the amniotic cavity. The autopsy of the fetus showed a hemorrhagic ascite of 120 g, hepatosplenomagaly, and sero-hemmorhagic maculas of the pericardium and pleura. The 2nd case, 21 yr old, with a history of death from jaundice of the 1st infant, was hospitalized at the 6th month of the 2nd pregnancy. A fetal transfusion was performed. The pregnancy was interrupted by cesarean section. The child, with moderate hepatosplenomegaly, died 4 hr later. Autopsy showed an intense intra-hepatic hemopoiesis, and moderate hyaline membrane disease. The 3rd case, 27 yr old, with a history of precocious jaundice during the 2nd pregnancy and a state of pre-anasarca and ascites at the autopsy of the 4th infant, was hospitalized at the 29th week of the 5th pregnancy. Two intra-peritoneal transfusions were performed, followed by spontaneous delivery at the 31st week of pregnancy. The infant of 2 kg with voluminous hepatosplenomegaly and melena followed by jaundice was submitted to an exchange transfusion. From the 7th day the ponderal growth was normalized and after 2 months the weight was 3 kg. The causes of the 2 failures are discussed, and the use of the Liley method is suggested only in selected cases.

### 5918 INDUCTION OF ALLOGENIC EXTRACTS OF LIVER-SPECIFIC PRECIPITATING AUTO-ANTIBODIES IN THE MOUSE. *(E.)* Fravi, G. (Inst. Med. Microbiol., U. Zurich, Switzerland) and J. Lindenmann. *Nature* 218(5137):141-143, 1968.

Adult mice were immunized by weekly i.p. injections of 0.2 ml aqueous mouse liver extracts mixed with Freund's complete adjuvant. To prepare the extracts, livers from inbred mice were homogenized with an equal weight of water and centrifuged. The supernatant was shaken with chloroform and the aqueous phase, stored at -20C until used, provided antigen for immunization and gel-precipitation. Six or 7 days after the 3rd and subsequent injections of antigen, trial bleedings were taken from the orbit. Sera from individual mice was allowed to react in double-diffusion gel-precipitation. Six or 7 days after the 3rd and subsequent injections of antigen, trial bleedings were taken from the orbit. Sera from individual mice were allowed to react in double-diffusion gel-precipitation tests with various antigens. In some strains repeated i.p. injections induced ascites. Such ascites were tapped periodically. Similar quantities of antibody, when present, appeared in the serum and in the ascitic fluid. In the first experiment, 10 CBA mice were immunized with liver extract from BALB/c mice. By the 5th consecutive injection all mice had formed antibody which, when tested by gel-diffusion, gave a strong line of precipitation with BALB/c liver extract. To make sure that the antigen-antibody reaction was not caused by some microbial contamination, the experiment was repeated with CABfCFW/Lac mice which were immunized with extracts from frozen livers of BALB/c mice. The results were identical. Faint precipitation lines were present after the third, and antigen was present in all mice after the fourth injection of antigen. The antibody proved to be a liver-specific antibody. Aqueous solutions similarly prepared from other mouse organs (e.g., spleen, heart, lung, brain, gut, uterus, testis, and seminal vesicles) showed no reaction. Mouse kidney extracts gave a weak precipitation line. Liver extracts from mammals (e.g., rat, hamster, rabbit, guinea pig, dog, cat, sheep, cow, horse, and man) also gave clear lines of precipitation with the mouse antisera. Other mouse strains could be stimulated to form the antibody and mouse extracts from other strains could serve as the immunizing stimulus. Immunization with liver extracts from the same inbred strain did not induce antibody formation.

### 5919 VENO-OCCLUSIVE DISEASE OF THE LIVER–SOME NEW ASPECTS. *(E.)* Freiman, I. (South African Inst. Med. Res., Johannesburg, South Africa), A. Schmaman, R. Zamit and M. Appleberg. *S Afr Med J* 42(6): 126-129, 1968.

Between January 1962 and September 1966, 15 cases of veno-occlusive disease of the liver were investigated and treated. The presenting symptom was abdominal distension of sudden onset in 14, associated with vomiting in 7. The illness was of short duration: 2-14 days in all but 1 who had been ill for 7 months. Eight were less than 18 months old. There were 11 males and 4 females. Ten presented an acute stage and 5 a subacute. A hard liver was palpable in all and in 6 there was associated splenomegaly. The liver and spleen were palpable 1-3 cm and 0.5-2 cm below the costal margin, resp. Ascites was present in 14 and absent in 1 (subacute) case. Biochemical jaundice was found in all: bilirubin values ranged from 1.4-13 mg/100 ml with a mean level of 4.2 mg/100 ml. The prothrombin index ranged from 22 to 100% with a mean of 65%. The hemoglobin levels varied from 5.6-13.1 g/100 ml with a mean of 9.6 g/100 ml. All children were underweight but no instance of frank kwashiorkor was seen. The serum albumin level was reduced in all (11) in whom this was studied range 1.1-2.6 g/100 ml with the mean 2.1 g/ml. In the 8 children in whom ascitic fluid protein was studied it was high: range: 1.3 g/100 ml to 3.9 g/ml with a mean of 2.5 g/ml. The prognosis is poor: 10 children died and 3 of 5 survivors were less than 16 months old. In one instance a clinical and histological cure was demonstrated 3 yr after onset. The death occurred in both the acute and the subacute stage. Since treatment is unspecific, it was largely limited to control of ascites by salt-free diet and diuretics. In 1 case, ascitic fluid was reinfused into the cephalic vein. The child died of other complications so this therapy could not be evaluated. If there was evidence of impending liver failure, dietary proteins were restricted. Seven received steroids on the assumption that fibrosis would be averted: no benefit could be demonstrated. Two children developed the hemolytic-uremic syndrome; 2 developed duodenal ulcers, and in 1 case the hepatic lesions were irregularly distributed with resulting diagnostic difficulty after initial needle biopsy.

### 5920 ENZYME STUDIES IN PRIMARY CARCINOMA OF THE LIVER. *(Fr.)* Linhard, J. (Cent. Transfusion C.H.U., Dakar, Senegal), G. Diebolt and V. Schwarzmann. *Bull Soc Med Afr Noire Lang Franc* 13(3): 555-560, 1968.

Levels of transaminase (SGOT and SGPT), ornithine-carbamyl-transferase (OCT), isocitric-dehydrogenase (IDH), LDH, malic-dehydrogenase (MDH) and aldolase activity were assayed in serum and liver biopsies from 66 patients with primary liver carcinoma. SGOT was elevated in 83%, and SGPT in 77%; hepatic GOT was elevated in 52%, and GPT in 15%. LDH, both in serum and hepatic tissue, was normal or below. In 44% of the liver biopsies an enzymatic activity of MDH higher than 100,000 U/g/hr was observed and in 57% a lower activity In 61% an increase of serum aldolase activity was found, and in 34% an increase in hepatic aldolase. In all cases an increase in serum IDH was present and in 80% a decrease in hepatic IDH. OCT was increased in 84%. Hepatic enzyme determinations are not useful at present in the diagnosis of primary carcinoma of the liver.

### 5921 NEUROLOGIC FORMS OF PRIMARY CANCER OF THE LIVER. CLINICAL AND EEG STUDY.

*(Fr.)* Collomb, H. (Fac. Med., Dakar, Senegal), N. Sankalé, M. Dumas and J.-P. Ancelle. *Bull Soc Med Afr Noire Lang Franc* 13(3):577-585, 1968.

Neurologic complications in primary cancer of the liver were observed in 19 patients (1.5-2% of the cases). They were mainly due to osseous (spinal or cranial) or cerebral metastases. They seldom revealed a hepatoma. Spinal compression (13 cases) was most frequent and was usually caused by spinal metastases. Alterations in the cranial nerves, caused by osseous metastases, were observed in 1 case of latent hepatoma. Hemiplegia from cerebral metastases was seen in 5 cases: this was also manifest by convulsive crisis. The symptomatology of these metastases did not differ from that of other encephalic metastases of visceral neoplasms. Except for the terminal coma, neuropsychiatric complications caused by metabolic disturbances were very rare. These disturbances, however, were confirmed by electroencephalography in 75% and were more remarkable in the malignant cirrhotic forms than in the usual tumoral forms of the disease.

### 5922 OUR EXPERIENCE OF SURGICAL TREATMENT OF THE PRIMARY CARCINOMA OF THE LIVER.

*(Fr.)* Chabal, J. (Inst. Med., Dakar, Senegal) and B. Diouf. *Bull Soc Med Afr Noire Lang Franc* 13(3):594-603, 1968.

Case reports are presented of 10 primary liver carcinomas in the adult. In 6 there was an exploratory laparotomy; in 3 a hepatectomy with 1 postoperative death, 1 death 3 months due to recurrence and 1 survival 3 yr and 10 months after surgery. As surgery requires the ablation of the entire carcinoma, the most negative factor is intrahepatic dispersion of the tumor, since removal of 75-80% of the hepatic parenchyma is the maximum possible. Laparoscopy, splenoportography, cavography, phlebography and selective arteriography were useful in diagnosis and in indications for surgery. The hepatectomies were performed with the technique of Ton That Tung.

### 5923 SPINAL COMPRESSION FROM METASTASES OF LIVER CANCER NOT CLINICALLY APPARENT. TEN CASES.

*(Fr.)* Carayon, A. (Ctr. Hosp. Fann, Dakar, Senegal), B. Courson, R. Virieu and B. Piquard. *Bull Soc Med Afr Noire Lang Franc* 13(3):586-593, 1968.

Ten instances of spinal involvement by metastases from primary liver cancer were diagnosed only after surgery. The patients were all males and 3 were in the 3rd decade, 4 in the 4th, 2 in the 5th, and 1 in the 6th. The presenting symptom was most frequently paraplegia: in 6 there was no clinical evidence of liver pathology and the diagnosis of metastases from primary liver cancer was made only after exploratory surgery to relieve the compression. In the other 4 there were symptoms of liver involvement before surgery. All cases were confirmed by biopsy. All died within a short time after surgery. Diagnosis is primarily directed at establishing the primary lesion and the secondary nature of the neurological involvement. Surgery may be performed to obtain a mechanical decompression but has limited value.

### 5924 THE DIAGNOSIS AND TREATMENT OF GASTROESOPHAGEAL BLEEDING IN PORTAL HYPERTENSION IN CHILDREN.

*(Rus.)* Pugachev, A. G. (Inst. Pediat., Acad. Med. Sci. USSR, Moscow), A. I. Generalov, L. I. Malinina, A. F. Leontiev, Iu. N. Osipov, T. N. Nikolaeva and T. G. Plakhuta. *Grudn Khir* 10(3):124-129, 1968.

Portal hypertension was complicated by gastroesophageal bleeding in 51 of 130 children. These children were between 10 months and 13 yr old and included 47 with extrahepatic blocks, 3 with intrahepatic blocks, and 1 with a combination of both forms. The presence of varices was confirmed with barium-contrast X-rays and esophagoscopy; collateral circulation was studied with splenoportography or mesenteric portography. Most of the children who bled had varices in 2/3 or more of the esophagus and had portal vein pressures of about 400 mm $H_2O$. Operations (splenectomy alone or combined with ligation of the left gastric vein, omentopexy, and Tanner's procedure) had been performed on 38 of the children before hospitalization. Bleeding did not recur in 13 cases followed for 6 months to 5 yr after surgery. Bleeding continued after surgery in 22 cases and developed after surgery in 3. In contrast to adults with portal hypertension, these children tended to become anemic rapidly but had little or no disturbances in liver function. Conservative treatment consisted of transfusions of whole blood; i.v. administration of 10% $CaCl_2$ or calcium gluconate and 40% glucose with vitamins; injections of menadione sodium bisulfite and ε-aminocaproic acid; oxygen therapy; cardiac glycosides; s.c. administration of insulin and glucose; hypertonic saline enemas; and diuretics for ascites. Conservative treatment stopped bleeding in 27 cases while surgery was necessary in 11. Best results in reducing portal pressure were obtained with a modification of Tanner's procedure in which the blood vessels of the posterior wall of the stomach were isolated. This procedure was performed on 18 children including 5 who were still bleeding. Follow-ups were made on 41 patients 3 months to 5 yr after surgery. Nine had recurrent bleeding after surgery, 5 were operated on a second time, and 4 continued to have gastrointestinal bleeding which responded readily to conservative therapy.

### 5925 SPECIFIC ACTIVE IMMUNOTHERAPY IN THE HEPATIC CARCINOMA.

*(Fr.)* Baylet, R. (Inst. Med., Dakar, Senegal) and M. Sankalé. *Bull Soc Med Afr Noire Lang Franc* 13(3):549-552, 1968.

A fragment of hepatic tumor, prepared by Doubrow's et al technique, was autotransplanted into the deltoid region of 3 patients with hepatocellular carcinoma. No clinical improvements or modifications of this terminal disease were noted; survival time was of 1, 2 and 5 months. The injection of carcinomatous tissues, by the method of Finney et al, was performed on 13 patients with hepatic carcinoma; only 9 of them could be followed. The survival time was between 12-15 days for 4 patients and 20-35 days for 5. The presence of antitumoral circulating antibodies was not determined in any case.

### 5926 PNEUMOCOCCAL PERITONITIS IN PATIENTS WITH POSTNECROTIC CIRRHOSIS.

*(E.)* Epstein, M. (Cleveland Metropolitan Gen. Hosp., Ohio), F. M. Calia and G. J. Gabuzda. *New Eng J Med* 278(2):69-73, 1968.

Six episodes of pneumococcal peritonitis in 5 patients with postnecrotic cirrhosis, portal hypertension and ascites are reported. When fever or abdominal complaints, especially with leukocytosis, occur in patients with postnecrotic cirrhosis with ascites the diagnosis of pneumococcal peritonitis should be considered. In the 6 episodes described, pneumococcal peritonitis occurred 27-50 months after the initial diagnosis of liver disease. The hepatic disease persisted and was progressive as evidenced both clinically and by liver function tests. The clinical course of these patients was not unique. Postnecrotic cirrhosis was diagnosed by biopsy or at autopsy. In 4 patients this was diagnosed as the posthepatic type, probably a sequela of viral hepatitis. The peritonitis became manifest insidiously: lethargy, fever, diffuse abdominal pains or cramps, vomiting, and the absence of overt physical signs of peritoneal irritation in an abdomen distended with ascites. A marked polymorphonuclear leukocytosis was observed in 5 of 6 episodes. None presented respiratory symptoms nor radiologic evidence of pulmonary infection at admission. Pulmonary findings did not appear during the active phase as judged by physical examination or repeated X-ray studies except in 1 patient. (He had bilateral lower-lobe pneumonia 3 days after the diagnosis of peritonitis was made.) Although physical examination and gross characterization of the ascitic fluid were not diagnostic, cell counts and Gram-stained smears of ascitic fluid provided a tentative diagnosis which was confirmed by bacteriologic studies of blood and ascitic fluid. Bactericidal levels of penicillin were observed in the ascitic fluid after relatively small i.v. doses. The pneumococcal peritonitis responded to parenteral penicillin, but the peritonitis was preterminal in 4 and death was caused by other complications.

5927 LIVER DISEASE ASSOCIATED WITH POSITIVE L.E.-CELL TEST AND POSITIVE RHEUMATOID FACTOR. [CASE REPORT] *(E.)* Foster, G. S. (Massachusetts Gen. Hosp., Boston) and B. Castleman. *New Eng J Med* 281(4):206-213, 1969.

5928 MYCOTOXINS. A POSSIBLE CAUSE OF PRIMARY CARCINOMA OF THE LIVER. *(Rev.)(E.)* Alpert, M. E. (Massachusetts Gen. Hosp., Boston) and C. S. Davidson. *Amer J Med* 46(3):325-329, 1969.

5929 INTRAHEPATIC PORTAL VEIN OCCLUSION. A CAUSE OF PORTAL HYPERTENSION. *(E.)* Talner, L. B. (Yale U. Sch. Med., New Haven, Conn.), J. L. Boyer and A. R. Clemett. *Radiology* 92(6):1265-1270, 1969.

5930 EFFECT OF TOLBUTAMIDE ON LIVER CHANGES FOLLOWING HEPATIC ARTERY LIGATION. AN EXPERIMENTAL STUDY. *(E.)* Prakash, A. (All India Inst. Med. Sci., New Delhi) and M. C. Tanga. *Int Surg* 51(14):334-340, 1969.

5931 CYTOMEGALOVIRUS HEPATITIS IN AN ADULT. AN AUTOPSY REPORT. *(E.)* Henson, D. (Natl. Inst. Hlth., Bethesda, Md.). *Arch Path (Chicago)* 88(2):199-203, 1969.

5932 A COMPUTER DIAGNOSTIC SYSTEM FOR THE DIAGNOSIS OF PROLONGED UNDIFFERENTIATING LIVER DISEASE. *(Rev.)(E.)* Burbank, F. (Stanford U. Sch. Med., Palo Alto, Calif.). *Amer J Med* 46(3):401-415, 1969.

5933 OBSERVATIONS ON A FAMILY WITH CHRONIC HYPERBILIRUBINAEMIA. *(E.)* Kennelly, B. M. (Groote Schuur Hosp., Johannesburg, S. Africa), H. Kavin and S. J. Saunders. *S Afr Med J* 43(2): 36-39, 1969.

5934 CONSERVATIVE TREATMENT OF JAUNDICE. *(Ger.)* Siede, W. (Frankfurt, Germany). Pp. 383-387 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer, Verlag, 1968. 492 pp.

5935 SURGICAL TREATMENT OF JAUNDICE. *(Ger.)* Kummerle, F. (Mainz, Germany). Pp. 389-396 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5936 CORTICOID TREATMENT OF INTERNAL JAUNDICE. *(Ger.)* Gros, H. (Saarbrücken, Germany). Pp. 387 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5937 DIFFERENTIATION OF JAUNDICE FORMS BY MEANS OF SERUM ISOENZYME DETERMINATION. *(Ger.)* Gerlach, U. (Münster, Germany). Pp. 314-315 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5938 RADIOISOTOPES IN ICTERUS DIAGNOSIS. *(Ger.)* Wolf, F. (Erlangen, Germany). Pp. 427-435 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5939 LIVER PUNCTURE IN JAUNDICE. *(Ger.)* Lindner, H. (Hamburg, Germany). Pp. 345-350 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5940 BLOOD COAGULATION AND JAUNDICE. *(Ger.)* Koller, F. (Basel, Switzerland). Pp. 317-323 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5941 SERUM BILIRUBIN IN NEWBORN. PER-HOUR INCREASE DURING THE FIRST 24 HOURS AFTER BIRTH. *(E.)* With, T. K. (Svendborg, Denmark). Pp. 284-286 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5942 BREAST FEEDING AND PROLONGED NEONATAL JAUNDICE. *(E.)* Arias, I. M. (New York, N. Y.). Pp. 283-284 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5943 **FURTHER COMMENTS ON INTERMITTENT INTRAHEPATIC CHOLESTASIS AND POST-OPERATIVE JAUNDICE.** *(E.)* Stathers, G. (Sydney, Australia). Pp. 257-258 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5944 **INFECTION DEPENDENT ICTERUS IN THE NEWBORN.** *(Ger.)* Vest, M. (Basel, Switzerland) and L. Schubarth-Meier. Pp. 277-282 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5945 **PHYSIOLOGICAL AND PATHOLOGICAL FORMS OF ICTERUS IN THE NEWBORN.** *(Ger.)* Künzer, W. (Freiburg, Germany). Pp. 259-277 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5946 **TWO CASES OF INTERMITTENT INTRAHEPATIC CHOLESTASIS OF UNKNOWN ETIOLOGY IN BOSTON. SOME ASPECTS OF POSTOPERATIVE JAUNDICE.** *(E.)* Isselbacher, K. J. (Boston, Mass.). Pp. 256-257 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5947 **LAPAROSCOPY IN THE DIFFERENTIAL DIAGNOSIS OF JAUNDICE.** *(Ger.)* Wildhirt, E. (Kassel, Germany). Pp. 331-335 in *Ikterus.* International Symposium 27-29 October 1067. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5948 **LAPAROSCOPIC AND TRANSHEPATIC CHOLANGIOGRAPHY AND THEIR COMPLICATIONS OBSERVED FROM A SURGICAL VIEWPOINT.** *(Ger.)* Zittel, R. X. (Freiburg, Germany). Pp. 381-382 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5949 **THE QUESTION OF POST-HEPATITIS HYPERBILIRUBINEMIA.** *(Ger.)* Franken, F. H. (2nd Med. U. Clin., Düsseldorf, Germany), W. H. Schilling and D. Amelung. Pp. 183-187 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5950 **TRANSFUSION IN CHILDREN WITH HEPATIC COMA FOLLOWED BY VIRAL HEPATITIS.** *(Dut.)* Janssen, A. E. (Rotterdam, Netherlands) and H. Beekman. *Nederl T Geneesk* 112(6):262-268, 1968.

5951 **PENACILLAMINE FOR TUBULAR DYSFUNCTION IN WILSON'S DISEASE.** *(E.)* Troelstra, J. A. (Dept. Pediatrics, State U., Groninger, Netherlands) and H. Holl. *Lancet* 1(7551):1094, 1968.

5952 **THE USE OF PITRESSIN IN PORTAL HYPERTENSION CAUSED BY SCHISTOSOMIASIS.** *(Por.)* Correia, A. R. (Med. Sch., Fed. U. Pernambuco, Brazil), R. F. de Azevedo Melo, A. T. Coelho, A. M. da Silveira Arraes, R. P. Toscano, E. C. de Albuquerque and L. C. T. da Silva. *Folha Med* 57(6):897-914, 1968.

5953 **SERUM LIPIDS AFTER EXTENSIVE LIVER RESECTION IN MAN.** *(E.)* Almersjo, O. (Sahlgren Hosp., Goteborg, Sweden), S. Bengmark, L. Engevik, J. Kerstell and A. Svanborg. *Acta Hepatosplen (Stuttgart)* 15(1):1-12, 1968.

5954 **PRIMARY AMYLOIDOSIS SIMULATING CIRRHOSIS OF THE LIVER. [CASE REPORT]** *(Por.)* Meneghelli, U. G. (Ribeirao Preto Fac. Med., U. São Paulo, Brazil), J. A. Mello de Oliveira and J. R. H. Mesquita. *Rev Paul Med* 73(2):81-86, 1968.

5955 **HISTOLOGICAL AND HEPATOSCINTILLOGRAPHIC ASPECTS OF LIVER TRANSPLANTATION.** *(Por.)* Bevilacqua, R. G. (Fac. Med., U. São Paulo, Brazil), E. Lima-Goncalves, M. C. C. Machado, J. C. Cunha, J. E. M. Cunha, O. A. Behmer, J. Kieffer, G. Skromne and O. Carvalho Filho. *Rev Paul Med* 72(6):289-302, 1968.

5956 **CYSTIC DISEASE OF THE LIVER: REPORT OF A CASE AND A NEW TECHNIQUE FOR SURGICAL TREATMENT.** *(Por.)* Raia, A. A. (Fac. Med., U. São Paulo, Brazil) and J. J. Gama Rodrigues. *Rev Paul Med* 73(2):65-72, 1968.

5957 **CAUSES OF JAUNDICE IN PREGNANCY, AS REVEALED BY AUTOPSY DATA.** *(Rus.)* Rychnev, V. Ie. (Med. Inst., Rostov-on-Don, USSR), Ie. A. Dombrovskaia and N. G. Portnova. *Akush Ginek (Moskva)* 44(10):71-73, 1968.

5958 **HEPATIC COMA.** *(Fr.)* Dorf, G. (Med. Fac., Paris, France). *Rev Med (Paris)* 9(1):41-43, 1968.

5959 **RHEOGRAPHY OF THE LIVER IN PATIENTS WITH RHEUMATIC FEVER.** *(Rus.)* Lileiev, V. A. (Yaroslavl Med. Inst., USSR). *Ter Arkh* 40(3):26-28, 1968.

5960 **SPONTANEOUS PRIMARY RUPTURES OF THE LIVER.** *(Sp.)* Gramática,Mateos, L. (S. Cruz y S. Pablo Hosp., Barcelona, Spain), R. Hortas Iglesias and M. Martínez Brey. *Med Clin (Barc)* 50(5):349-352, 1968.

5961 **HEMOCHROMATOSIS.** *(Rus.)* Belen'kii, V. M. (3rd Munic. Hosp., Orekhovo-Zuevo, USSR) and L. M. Landesman. *Ter Arkh* 40(6):114-115, 1968.

5962 **HETEROTOPIC TRANSPLANTATION OF THE LIVER KEEPING THE PORTAL VEIN INTACT.** *(Rus.)* Mallet-Guy, P. (Ed. Herriot Hosp., Lyon, France), J. Michoulier, L. Bernard, J. Imbert, M. Barbier, P. Espinasse, J. Feroldi and Y. Mallet-Guy. *Eksp Khir Anest* 13(4):44-46, 1968.

5963 **HEPATIC STEATOSIS.** *(Sp.)* Garcia-Conde Gomez, F. J. (Fac. Med., U. Valencia, Spain), F. Chulia Orti and F. J. Garcia-Conde Bru. *Rev Esp Enferm Apar Dig* 27(3):377-393, 1968.

5964 **CLINICAL OBSERVATIONS OF THE PATHOLOGY IN FOUR POLYCYSTIC LIVER CASES.** *(Fl.)* de Baere, H. (State U., Gent, Belgium), R. Rottiers, J. van Egmond and L. Demeulenaere. *Acta Clin Belg* 23(1):32-45, 1968.

5965 **CORTICOIDS IN HEPATOLOGY.** *(Fl.)* Demeulenaere, L. (Clin. Intern. Med., U. Gent, Belgium). *T Geneesk* 24(11):594-595, 1968.

5966 **RUPTURE OF THE LIVER TREATED ACCORDING TO THE "FINGER-FRACTURE" METHOD. [CASE REPORT]** *(Dut.)* Nieuwenhuys, J. H. (Dijkzigt Hosp., Rotterdam, Netherlands), J. Vonk, E. van Leer and J. Silberbusch. *Nederl T Geneesk* 112(40):1775-1778, 1968.

5967 **BILE: WIDE GAPS IN USEFUL KNOWLEDGE.** *(E.)* Hardison, W. G. M. (Presbyterian-St. Luke's Hosp., Chicago, Ill.). *Presbyterian St Lukes Hosp Med Bull* 8(2):42-46, 1969.

5968 **JAUNDICE AND HYDATID DISEASE OF THE LIVER.** *(E.)* Zielinski, V. E. (Prince Henry Hosp., Sydney, Australia) and R. G. Elmslie. *Med J Aust* 1(17):839-842, 1969.

5969 **THE GLYCOGENOSES.** *(Fr.)* Badoual, J. (Heroid Hosp., Paris, France) and H. Lestradet. *Path Biol* 16(7/8):457-469, 1968.

5970 **PRESENT SURGICAL POSSIBILITIES IN THE BUDD-CHIARI SYNDROME.** *(Fr.)* Chevrel, B. (Saint Antoine Hosp., Paris, France) and J. P. Chevrel. *Rev Medicochir Mal Foie* 44(1):47-56, 1969.

5971 **A CASE OF NONPARASITIC CYSTS OF THE LIVER IN A CHINESE CHILD.** *(E.)* San, O. E. (Dept. Pediat., U. Singapore). *J Singapore paediat Soc* 11(1):82-88, 1969.

5972 **MULTILOCULAR ABSCESS OF LEFT LOBE OF LIVER. [CASE REPORT]** *(E.)* Anonymous. *New Eng J Med* 281(2):93-98, 1969.

5973 **FATAL NEONATAL HEPATIC STEATOSIS: A NEW FAMILIAL DISORDER.** *(E.)* Satran, L. (U. Hosp., Minneapolis, Minn.), H. L. Sharp, J. R. Schenken and W. Krivit. *J Pediat* 75(1):39-46, 1969.

5974 **BILE PIGMENTS IN DIAGNOSIS.** *(E.)* Anonymous. *Diagnostica* Aug. (13):4-9, 1969.

5975 **HEMIHEPATECTOMY FOR LIVER METASTASES.** *(E.)* Hughes, E. S. R. (Royal Melbourne Hosp., Australia), I. H. McConchie, K. H. Hardy and V. Marshall. *Med J Aust* 1(11):569-572, 1969.

5976 **PRIMARY CARCINOMA OF THE LIVER IN CHILDREN: REPORT OF TWO CASES IN SENEGAL.** *(Fr.)* Chabal, J. (Fac. Med., Dakar, Senegal), E. Goudoté, A. Diop and G. Tourame. *Bull Soc Med Afr Noire* 13(3):610-622, 1968.

5977 **A CASE OF LIVER RESECTION FOR HEPATIC ECHINOCOCCOSIS.** *(Bul.)* Tenev, S. (Higher Med. Inst., Sofia, Bulgaria), K. Karaivanov and A. Grebenarov. *Khirurgiia (Sofiia)* 21(2):188-189, 1968.

5978 **JAUNDICE.** *(E.)* Pulimood, B. M. (Christian Med. Coll. Hosp., Vellore, India). *J Christ Med Ass India* 44(7):366-371, 1969.

5979 **THE MECHANISMS OF DIRECT HYPERBILIRUBINEMIA IN LIVER PARENCHYMA DAMAGE.** *(Ger.)* Kühn, H. A.(Med. U. Clin. Giessen, Germany Pp. 178-181 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5980 **THE R. A. TEST OF PATIENTS WITH BLOOD AND LIVER DISEASE.** *(Jap.)* Sonoda, N. (Kumamoto Natl. Hosp., Japan) and T. Kanemitsu. *Iryo* 22(11):1291-1295, 1968.

5981 **JAUNDICE IN PREGNANCY.** *(Ger.)* Schmid, M. (Zurich, Switzerland) and U. P. Haemmerli. Pp. 227-232 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5982 **PATHOGENESIS OF DRUG INDUCED JAUNDICE.** *(Ger.)* von Oldershausen, H. F. (Tübingen, Germany). Pp. 242-248 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5983 **HEMOLYTIC JAUNDICE.** *(Ger.)* Schubothe, H. (Freiburg, Germany), W. Künzer and S. Weber. Pp. 191-198 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5984 **ZIEVES SYNDROME OBSERVATIONS.** *(Ger.)* von Oldershausen, H. F. (Tübingen, Germany). Pp. 219-225 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5985 **RECURRENT INTRAHEPATIC CHOLESTASIS IN TWINS.** *(Ger.)* Kühn, H. A. (Giessen, Germany). Pp. 255-256 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5986 **DYSERYTHROGENIC ANEMIA WITH INDIRECT HYPERBILIRUBINEMIA.** *(Ger.)* Heimpel, H. (Ulm, Germany). Pp. 198-203 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed New York, F.K. Schattauer Verlag, 1968. 492 pp.

5987 **ECHINOCOCCOSIS AND LIVER TUMORS AS CAUSES OF JAUNDICE. RESULTS OF SURGICAL TREATMENT.** *(Ger.)* Stucke, K. (Würzburg, Germany). Pp. 398-399 in *Ikterus.* International Symposium 27-29. October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5988 **BILE ACID RETENTION IN JAUNDICE.** *(Ger.)* Frosch, B. (Heidelberg, Germany). Pp. 437-441 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5989 **INDOCYANINE GREEN CLEARANCE IN JAUNDICE.** *(Ger.)* Paumgartner, G. (Vienna, Austria) and C. M. Leevy. Pp. 419-424 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5990 **SULFOBROMOPHTHALEIN ELIMINATION IN JAUNDICE.** *(Ger.)* Hoenig, V. (Prague, Czechoslovakia). Pp. 409-414 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

5991 **JIRGL'S TEST IN DIFFERENTIAL DIAGNOSIS OF JAUNDICE.** *(It.)* Pistacchi, E. (Gen. Surg. Clin., U. Pavia, Italy). *Chirurgia* 22(2):73-77, 1967.

5992 **CUPREMIA AS A DIFFERENTIAL TEST FOR JAUNDICE.** *(It.)* Pistacchi, E. (Gen. Surg. Clin., U. Pavia, Italy). *Chirurgia* 22(2):53-58, 1967.

5993 **A STUDY OF SOME PATHOLOGICAL CONDITIONS OF THE LIVER THROUGH LIVER SCINTIGRAPHY AND SPLENOPORTOGRAPHY.** *(It.)* Canalis, G. C. (Inst. Radiol., U. Sassari, Italy), V. Cavallo and A. M. Taschieri. *Nunt Radiol* 33(Suppl.):471-481, 1967.

5994 **THE PRESENCE OF GAS IN THE INTRAHEPATIC PORTAL SYSTEM. EXAMPLE OF ONE CASE.** *(It.)* Di Blasio, U. (G. Rummo Munic. Hosp., Benevento, Italy). *Nunt Radiol* 33(Suppl.):337-343, 1967.

5995 **INDICATIONS AND RESULTS OF SPLENECTOMY DURING BANTI'S SYNDROME IN CHILDREN.** *(It.)* Battisti, C. (Inst. Semeiotic Surg., U. Bologna, Italy) and A. Cavallari. *Riv Gastroent* 19(6 Suppl.): 883-892, 1967.

5996 **HEPATIC TUMOURS AND OTHER CHRONIC LIVER CHANGES IN RATS FOLLOWING A SINGLE ORAL ADMINISTRATION OF AFLATOXIN.** *(E.)* Carnaghan, R. B. A. (Cent. Vet. Lab., Weybridge, Surrey, England). *Brit J Cancer* 21(4):811-814, 1967.

5997 **EXAMINATIONS OF PATIENTS WITH AND WITHOUT LIVER DISEASES AFTER INTRAVENOUS AND ORAL GALACTOSE SATURATION.** *(Ger.)* Foerster, H. (Munich-Schwabing Hosp., Germany), M. Haslbeck and H. Mehnert. *Verh Deutsch Ges Inn Med* 73(4): 245-250, 1967.

5998 **HEPATOGENIC HYPOGLYCEMIA TREATED WITH ASPIRIN. CASE REPORT.** *(Pol.)* Jablonska, A. (Acad. Med., Lublin, Poland) and J. Urban. *Pediat Pol* 44(2):219-221, 1969.

5999 **A CASE OF ACTIVE JUVENILE CIRRHOSIS (AUTO-IMMUNE HEPATITIS).** *(Dut.)* Ellis, J. L. (Hardenberg, Netherlands). *Nederl T Geneesk* 111(36): 1559-1563, 1967.

6000 **QUANTITATIVE DISTRIBUTION OF IMMUNOGLOBULIN IN LIVER DISEASES.** *(Ger.)* Grossmann, H. D. (Med. U. Polyclin., Heidelberg, Germany), K. Huhnstock and L. Wannagar. *Verh Deutsch Ges Inn Med* 73(4):237-241, 1967.

6001 **INFORMATION AND RESULTS OF SURGERY FOR HEPATIC OBSTRUCTION. (PERSONAL EXPERIENCE).** *(It.)* Trivellini, A. (Gen. Clin. Surg. Dept., U. Milan, Italy). *Arch Atti Soc Ital Chir* 69(1):227-249, 1967.

6002 **INFORMATION AND RESULTS OF SURGERY FOR HEPATIC OBSTRUCTIONS. (PERSONAL EXPERIENCE)** *(It.)* Fegiz, G. (Dept. Semeiotic Surg., U. Rome, Italy). *Arch Att Soc Ital Chir* 69(1):185-224, 1967.

6003 **RUPTURE OF A LEFT-LOBE AMOEBIC LIVER ABSCESS FOLLOWING A CAR ACCIDENT.** *(E.)* Goonaratna, C. (Fac. Med., Colombo, Ceylon) and D. M. O. Kitulgala. *Ceylon Med J* 12(3):181-182, 1967.

6004 **IMMUNOELECTROPHORESIS EXAMINATIONS DURING THE COURSE OF LIVER DISEASES.** *(Ger.)* Mondorf, W. (2nd Med. U. Clin., Frankfurt/M, Germany) and K. H. Goeggel. *Verh Deutsch Ges Inn Med* 73(4):235-237, 1967.

6005 **ROTOR'S SYNDROME: A FAMILY STUDY.** *(E.)* Poblete, P. F. (Coll. Med., U. Philippines, Manila), M. Reyes, L. Manahan and A. Dalmacio-Cruz. *Acta Med Philipp* 4(2):64-71, 1967.

6006 **LIVER RESEARCH, TRANSACTIONS OF THE 3rd INTERNATIONAL SYMPOSIUM OF THE INTERNATIONAL ASSOCIATION FOR THE STUDY OF THE LIVER.** *(E.)* Vandenbroucke, J., J. DeGroote and L. O. Standaert, Eds. *Tijdschrift voor Gastroenterologie,* 1967. 509 pp.

6007 **IRREVERSIBLE MILK ACID-ACIDOSIS IN ACUTE LIVER NECROSIS.** *(Ger.)* Leppla, W. (1st Med. U. Clin., Homburg, Germany), G. Kumposcht, G. A. Jutzler and H. E. Keller. *Verh Deutsch Ges Inn Med* 73(4): 259-264, 1967.

6008 **HEPATOCELLULAR CARCINOMA IN INFANCY AND CHILDHOOD IN IBADAN, WESTERN NIGERIA.** *(E.)* Williams, A. O. (Dept. Pathol., U. Ibadan, Nigeria), G. M. Edington and P. C. Obakponovwe. *Brit J Cancer* 21(3):474-482, 1967.

6009 BILIARY FIBROADENOMATOSIS AND CONGENITAL DILATATION OF THE INTRAHEPATIC BILE DUCTS. *(Fr.)* Boquien, Y. (Saint-Antoine Hosp., Paris, France), G. Delumeau, Y. Lenne, D. Perrin and Y. Veyrac. *Rev Medicochir Mal Foie* 42(6):265-282, 1967.

6010 SERUM BILE ACIDS IN HEPATOLOGY. I. INTRODUCTION TO A STUDY OF 195 PATIENTS: REPORT ON FINDINGS, DETAILS ON ANALYTICAL METHODS. *(Fr.)* Rautureau, M. (Saint-Antoine Hosp., Paris, France), B. Chevrel and J. Caroli. *Rev Medicochir Mal Foie* 42(4/5):167-171, 1967.

6011 SERUM BILE ACIDS IN HEPATOLOGY. III. SEVERE JAUNDICE. *(Fr.)* Rautureau, M. (Saint-Antoine Hosp., Paris, France), B. Chevrel and J. Caroli. *Rev Medicochir Mal Foie* 42(4/5):185-204, 1967.

6012 SERUM BILE ACIDS IN HEPATOLOGY. VI. CONCLUSIONS OF A STUDY OF 195 PATIENTS AND BIBLIOGRAPHY. *(Fr.)* Rautureau, M. (Saint-Antoine Hosp., Paris, France), B. Chevrel and J. Caroli. *Rev Medicochir Mal Foie* 42(4/5):232-236, 1967.

6013 INTRAOPERATIVE DIAGNOSIS IN BILIARY SURGERY. *(Ger.)* Stauber, R. (Leoben Hosp., Austria). *Wien Med Wschr* 117(37):1093-1098, 1967.

6014 RUPTURED CAVERNOUS HEMANGIOMA OF THE LIVER. REPORT OF A CASE. *(E.)* Dessoff, S. (Providence Hosp., Washington, D. C.). *Med Ann DC* 36(9):538-539, 1967.

6015 A CASE OF CONGENITAL HEPATIC FIBROSIS. ANATOMIC-PATHOLOGICAL CONTRIBUTION. *(It.)* Anastasio, M. (Inst. Normal Hum. Anat., U. Rome, Italy), V. Sinopoli and G. M. Pironti di Campagna. *Arch Ital Pediat* 25(5/6):428-441, 1967.

6016 RECENT REPORTS ON LIVER TRANSPLANTATION. *(It.)* Stefanini, P. (Inst. Surg. Pathol., U. Rome, Italy), R. Cortesini, C. Casciani and A. Arullani. *Epatologia* 13(4):831-842, 1967.

6017 HETEROTOPIC HOMOTRANSPLANTATION OF THE LEFT LIVER LOBE IN MAN. (EXPERIMENTAL STUDY). *(Fr.)* Fagarasanu, I. (Fac. Med., Bucharest, Romania). *Epatologia* 13(4):859-864, 1967.

6018 CONSTRICTIVE PERICARDITIS AND CURSCHMANN'S DISEASE. [CASE REPORT] *(Fr.)* Paris, J., M. Ribet, A. Dupont, A. Gerard and J. C. Paris. *Lille Med* 12(8):894-901, 1967.

6019 RADIOLOGICAL AND SURGICAL CORRELATION IN BILIARY TRACT DISEASES. *(Sp.)* De Castro Curti, R. (Nutrit. Dis. Hosp., Mexico), J. L. Bravo Llamosa and J. M. Ortiz Mendoza. *Rev Mexicana Radiol* 21(1):13-22, 1967.

6020 JUVENILE HEPATO-RENAL POLYCYSTOSIS AN OBSERVATION REVEALED BY AN INCREASE OF RENAL INSUFFICIENCY WITH ASYSTOLE. [CASE REPORT] *(Fr.)* Watchi, J. M. (Child. Hosp., Paris, France), P. Desprès, J. C. Hoeffel and P. Seringe. *Sem Hop (Paris)* 43(38/39):2292-2298, 1967.

6021 CATARRHAL HEPATOSIS OR ACUTE FATT LIVER. [CASE REPORT] *(Ger.)* Meyer zu Schwabedissen, O. (Achern, Germany). *Med Klin* 62(27-52): 1419-1421, 1967.

6022 GAS IN THE PORTAL SYSTEM. *(Sp.)* De Castro Curti, R. (Natl. Inst. Nutrit., Mexico) and J. Hernandez Ortiz. *Rev Mexicana Radiol* 21(3):171-17 1967.

6023 A STUDY OF SOLUBLE PROTEIN AND SUL HYDRYL LEVELS IN THE RAT LIVER DURING RAPID NORMAL AND PREMALIGNANT GROWTH. *(E.)* Argus, M. F. (Tulane U. Sch. Med., New Orleans, La.), J. A. Walder, J. A. Fabian and J. C. Arcos. *Brit J Cancer* 22(2):330-341, 1968.

6024 THE GLYCOGENOSES: VON GIERKE'S DISEASE, ACID MALTASE DEFICIENCY, AND LIVER GLYCOGEN PHOSPHORYLASE DEFICIENC *(E.)* Field, R. A. (Jefferson Med. Coll., Philadelphia, Pa.). *Amer J Clin Path* 50(1):20-28, 1968.

6025 SUBPARIETAL OR NON-PENETRATING TRAUMATIC RUPTURE OF THE BILIARY TREE. [CASE REPORT] *(E.)* Estrada, R. L. (Fac. Med., McGill U., Montreal, CAnada) and N. G. Sutherland. *Brit J Surg* 56(2):85-91, 1969.

6026 JAUNDICE FOLLOWING SPLENECTOMY IN HODGKIN'S DISEASE. [CASE REPORT] *(E.* Bichel, J. (Cancer Res. Inst., Aarhus, Denmark) and K. B. Jensen. *Acta Med Scand* 185(3):201-203, 1969.

6027 TREATMENT OF INFECTIOUS GRANULOM OF THE LIVER AND INFECTIOUS MONONUCLEOSIS. TREATMENT OF HEPATIC SCHISTOSOMIASIS, TUBERCULOSIS, SYPHILIS AND ECHINOCOCCUS CYST. *(Rev.)(E.)* Spellberg, M. A. (U. Illinois Sch. Med., Chicago). *Amer J Gastroent* 52(3):203-212, 1969.

6028 LYMPHATIC DECOMPRESSION THERAPY OF "INTRACTABLE" ASCITES. *(E.)* Steigmann, F. (U. Illinois Coll. Med., Chicago), D. Long and R. Mejicano. *Amer J Gastroent* 50(1):47-54, 1968.

6029 THE BOSTON INTER-HOSPITAL LIVER GROUP AS AN EXPERIMENT IN COOPERAT RESEARCH. [EDITORIAL] *(E.)* Chalmers, T. C. (Vetera Administration, Washington, D. C.). *Gastroenterology* 57(3) 339-341, 1969.

6030 ENZYME DIAGNOSIS IN HEPATOBILIARY DISEASE. *(Rev.)(E.)* Coodley, E. L. (Hahnemann Med. Coll., Philadelphia, Pa.). *Amer J Gastroe* 52(3):189-202, 1969.

031 ICTERUS AND THE KIDNEY. *(Ger.)* Martini, G. A. (Marburg, Germany) and H. Lange. p. 295-304 in *Ikterus.* International Symposium 27-29 ctober 1967. Beck, K., Ed. New York, F. K. Schattauer erlag, 1968. 492 pp.

032 HYPERLIPEMIA IN CHILDREN WITH LIVER GLYCOGEN DISEASE. *(E.)* Fernandes, J. Vilhelmina Child. Hosp., U. Utrecht, Netherlands) and N. A. ikaar. *Amer J Clin Nutr* 22(5):617-627, 1969.

033 GENERALIZED CYTOMEGALOVIRUS INFECTION IN A PATIENT WITH LUPOID EPATITIS. [CASE REPORT] *(E.)* Robson, G. S. (Royal elbourne Hosp., Australia) and I. R. Mackay. *Aust An Med* 8(2):147-150, 1969.

034 LIVER FUNCTION AND ORAL CONTRACEPTIVES. *(E.)* Mowat, A. P. (Albert Einstein oll. Med., Bronx, N. Y.) and I. M. Arias. *J Reprod Med* (1):45-55, 1969.

035 THERAPY WITH GLUCAGON OF SPONTANEOUS HYPOGLYCEMIA IN AN INOPERABLE IVER CARCINOMA. *(Ger.)* Muehe, E. (Surg. Clin., U. rlangen, Nürnberg, Germany), K. T. Schricker and D. aithel. *Deutsch Med Wschr* 94(36):1781-1785, 1969.

036 LIVER CELL JAUNDICE AFTER REPEATED INTRAVENOUS INFUSION OF FAT EMUL- IONS IN CHILDREN WITH EXTENSIVE INTESTINAL ESECTION. *(Ger.)* Olbing, H. (Child. Clin., Ruhr U., Essen, ermany), A. M. Engels and K. G. Dönges. *Deutsch Med schr* 94(36):1825-1826, 1969.

037 LIVER COMA THERAPY. *(Ger.)* Markoff, N. (Canton Hosp., Chur, Switzerland). *Deutsch ed Wschr* 94(36):1829-1832, 1969.

038 SUCCESSFUL TREATMENT OF HEPATIC HEMANGIOMA WITH CORTICOSTEROIDS. CASE REPORT] *(E.)* Goldberg, S. J. (U. California Sch. ed., Los Angeles) and E. Fonkalsrud. *JAMA* 208(13):2473-474, 1969.

039 PORTAL HYPERTENSION IN CHILDREN IN THE LIGHT OF OWN OBSERVATIONS. *Pol.)* Romański, A. (1st Surg. Clin., Silesian Acad. Med., abrze, Poland), T. Paliwoda and K. Romańska. *Pol Tyg Lek* 3(9):307-308, 1968.

6040 THE TEST OF BRIDICKA IN EPIDEMIC HEPATITIS. *(Pol.)* Grzybowski, J. (Dist. Hosp., Kozle, Poland), M. Szubiński, A. Wlodarska, J. Jankowski and K. Kirylowicz. *Wiad Lek* 21(6):449-452, 1968.

6041 THORACIC TRANSPOSITION OF THE SPLEEN IN PORTAL HYPERTENSION. *(Fr.)* Mégevand, R. (U. Surg. Clin., Geneva, Switzerland) and A. Cuendet. *Helv Chir Acta* 36(1/2):81-87, 1969.

6042 DETERMINATION OF A CAVERNOUS HEMANGIOMA OF THE LIVER BY VISCERAL ANGIOGRAPHY. REPORT ON RADIOLOGICAL DIAGNOSIS OF LIVER TUMORS. *(Ger.)* Sponder, L. H. (Munic. Hosp., Basel, Switzerland). *Radiol Clin Biol* 38(4):271-291, 1969.

6043 IMMUNOPATHOLOGY OF CHRONIC HEPATITIS AND RESULTS OF TREATMENT WITH CYTOSTASIS. *(Ger.)* Schmidt, E. (Med. Clin., Hannover, Germany) and F. W. Schmidt. *Deutsch Med J* 15(5):465-471, 1969.

6044 ANGIOGRAPHY IN PRIMARY HEPATIC TUMORS IN CHILDREN. *(E.)* Fredens, M. (U. Hosp., Copenhagen, Denmark). *Acta Radiol [Diagn.] (Stockholm)* 8(3):193-200, 1969.

6045 CHYLOUS ASCITES. MANAGEMENT WITH MEDIUM-CHAIN TRIGLYCERIDES AND EXACERBATION BY LYMPHANGIOGRAPHY. [CASE REPORT] *(E.)* Weinstein, L. D. (Yale U. Sch. Med., New Haven, Conn.), G. T. Scanlon and T. Hersh. *Amer J Dig Dis* 14(7):500-509, 1969.

6046 HEPATIC HYDROTHORAX. [CASE REPORT] *(E.)* Islam, N. (Inst. Postgrad. Med., Dacca, Pakistan), M. Sanaullah and A. K. Azad Khan. *Amer J Gastroent* 52(3):213-217, 1969.

6047 HEPATOCEREBRAL DEGENERATION "MORBUS WILSON". *(Ger.)* Biseold, D. (Dept. Neurochem., Karl Marx U., Leipzig, Germany) and B. Kunath. *Deutsch Gesundh* 24(24):1121-1124, 1969.

6048 A CASE OF DUBIN-JOHNSON'S SYNDROME. *(Pol.)* Szkolnicka, B. (Railroad Hosp., Gdańsk, Poland) and E. Ajdarow-Faustman. *Pol Tyg Lek* 23(17):637-639, 1968.

See also: 5091,5095,5105,5107,5110,5112,5115,5120,5121,5127,5128,5130,5131,5147,5168,5173,5174,5181,5219, 5290,5313,5315,5322,5324,5332,5352,5355,5396,5402,5404,5405,5407,5412,5414,5424,5427,5437,5442, 5454,5457,5463,5669,5779

### 6049 POTENTIATION BY A PROGESTATIONAL AGENT OF LIVER DAMAGE INDUCED BY A HEPATOTOXIC AGENT.

*(E.)* Joshi, U. M. (Seth G. S. Med. Coll., Bombay, India) S. S. Rao. *Indian J Exp Biol* 7(2):79-81, 1969.

Alanine aminotransferase activity increased in serum (45%) and liver (18%) of adult female rats injected biweekly with 0.0037 ml carbon tetrachloride ($CCl_4$) for 4 weeks and fed 50 μg enovid/day, 5 days in a week, for 4 weeks as compared to control animals treated with $CCl_4$ and fed propylene glycol, the solvent for enovid. Enovid aggravated the liver damage caused by a single i.p. injection of $CCl_4$ (0.1 ml/100 g body weight). Enovid had no effect on subsequent regeneration, except slight delay, as judged by the serum and liver alanine aminotransferase levels and the total lipids in liver.

### 6050 INCREASED BILIRUBIN FORMATION FROM NONHEMOGLOBIN SOURCES IN RATS WITH DISORDERS OF THE LIVER.

*(E.)* Robinson, S. H. (Harvard Med. Sch., Boston, Mass.) *J Lab Clin Med* 73(4) 668-676, 1969.

Male Sprague-Dawley rats given 50 μC 2-$^{14}$C-glycine i.v. were used to demonstrate conditions which lead to an increase in early bilirubin production. The hepatic component of the early labeled fraction of the bile pigment was found to be increased under the following conditions: toxic liver damage after repeated injections of $CCl_4$, liver regeneration from 2 to 5 days after subtotal hepatectomy, treatment with hydrocortisone or phenobarbital, and inflammatory disease due to intramuscular injection of turpentine. The increase in labeled bilirubin production in these experiments was qualitatively different from that observed with accelerated erythropoiesis, and consisted of an enlargement of the initial sharp component rather than the plateau phase of the early pigment fraction. Formation of early labeled bilirubin was significantly depressed in 2 of 3 rats studied within a few hr after subtotal hepatectomy. Increased bilirubin formation from nonhemoglogin sources may occur under a variety of pathologic and pharmacologic conditions and is a potential mechanism of hyperbilirubinemia in liver disease.

### 6051 MASSIVE LIVER NECROSIS IN THE MONKEY: THE EFFECTS OF EXCHANGE BLOOD TRANSFUSIONS ON FULMINANT LIVER FAILURE.

*(E.)* Trey, C. (Boston City Hosp., Mass.), F. G. Garcia, N. W. King, L. M. Lowenstein and C. S. Davidson. *J Lab Clin Med* 73(5):784-794, 1969.

Injections of $CCl_4$(0.18 ml/kg body weight intraportally) produced fulminant liver failure in 9 pairs of rhesus monkeys, in which the effect of exchange tranfusions was tested. One of each pair served as a control while the other received the exchange transfusions. Both members of the pairs developed coma within 8 hr. SGOT activities were over 2000 U and high alpha-amino nitrogen and ammonia concentrations in the blood confirmed the clinical evidence of severe liver disease. The first exchange transfusions prolonged survival from 14.9 ± 2.06 hr in the controls to more than 28 ± 3.2 hr when coma ensued, requiring a second exchange transfusion. This difference in survival was significant ($p < 0.005$). The second exchange transfusion further prolonged survival. In 2 monkeys a third exchange was done. Both monkeys recovered. Exchange tranfusion was effective in prolonging life after $CCl_4$ poisoning.

### 6052 THE FUNCTIONAL PATHOLOGY OF PARA-AMINOSALICYLIC ACID INTOXICATION IN TH RAT LIVER.

*(Ger.)* Bader, G. (Pathol. Inst., Friedrich Schiller U., Jena, Germany) and D. Stiller *Exp Path* 2(2):87-110, 1968.

On a high-carbohydrate diet containing 5% p-aminosalicylic aci intense glycogen storage was observed in the liver cells of Wista rats. This is caused by a reduction in thyroid activity produce by p-aminosalicylic acid and perhaps by direct inhibition of carbohydrate metabolism in the liver. Histochemical and electron microscope studies show that this intoxication occurs in several stages. Apart from an increase in peribiliary bodies, the glycogen-storage stage is associated with a decrease in the size of all cell structures. When hormone production continues to decrease, the liver cells go into a precachectic stage in which som reactivation of cell structures occurs. Finally, hypothyroid cachexia results in the atrophy of all liver cell structures. Slow regeneration of liver cells, after the p-aminosalicylic acid has been discontinued, suggests that the cause of the metabolic disturbance is extrahepatic (thyrogenic) in nature. Regeneratio of liver cells after partial hepatectomy was also slowed down when animals were given p-aminosalicylic acid. However, RNA metabolism is not disturbed very much since regeneration of liver cell structures occurs almost normally. Ultrastructural changes in the liver cells show that their pathological regeneration is primarily due to disturbances in their energy balance.

### 6053 ANALGESIC HABITS OF 500 VETERANS: INCIDENCE AND COMPLICATIONS OF ABUSE.

*(E.)* Gault, M. H. (Queen Mary Veterans' Hosp., Montreal, Canada), T. C. Rudwal and N. I. Redmond. *Canad Med Ass J* 98(13):619-626, 1968.

Of 500 patients, 110 admitted taking analgesic tablets containing acetylsalicylic acid 220 mg, phenacetin 160 mg, caffeine citrate 32 mg, and in almost all cases codeine phosphate 8 mg; 73 more took acetylsalicyclic acid alone. All 183 took analgesics at least 3 times a week with a minimum average daily intake of at least 1 tablet for at least 1 yr. The chief reason for taking analgesics was headache (68%). Arthritis was the reason in 16%. Analgesic abuse, defined as the consumption of at least 5 tablets/day for a minimal period of 3 yr with a total consumption of at least 1 kg, was found in 32 patients (all males, aged 44-79, average age 52). Twenty five took analgesics daily; 7 intermittently. Cirrhosis of the liver was known to be present in 2, one of whom was in an advanced phase. One patient suffered from carcinoma of the stomach with metastases. Of the 32 patients who abused analgesics, 12 had a gastrectomy and 26 had a history of gastrointestinal disorders. Of the 26 patients, 7 had gastric ulcers, 11 had duodenal ulcers, 4 had upper gastrointestinal tract bleeding and 4 others had ulcer symptoms, in none of these 8 was an ulcer demonstrated. A correlation between analgesic consumption

d gastrectomy is suggested by the data showing that 12 of
(37%) patients who abused analgesics required gastrectomy;
hereas, 14 of 151 (9%) who consumed analgesics moderately,
d 14 of 317 (14%) who did not use analgesics required
strectomy. Liver function tests consisting of serum bilirubin,
GOT, LDH, and alkaline phosphatase were each increased in
of the 26 patients tested. Two of the 3 had cirrhosis demon-
rated by biopsy and were among 12 known chronic alcoholics
the group of 26.

54 **LIVER LESIONS IN SYSTEMIC COLLAGEN DISEASES.** *(Rus.)* Leinov, L. E. (Donets Med
st., USSR). *Ter Arkh* 40(8):70-73, 1968.

ghty patients with systemic collagen diseases (33 disseminated
pus erythematosus, 15 scleroderma, 15 dermatomyositis, and
periarteritis nodosa) 66 females and 14 males, aged 14-53
were studied. Many had gastrointestinal symptoms (anorexia,
usea, vomiting, abdominal pain). Acute abdomen which de-
loped in 2 patients with periarteritis nodosa was found, on
rgery, to be due to vascular changes in the gallbladder and
esentery of the small intestine. Hepatomegaly was present in
and was most common in those with lupus, periarteritis
dosa, and scleroderma. Disturbances in hepatic protein
nthesis were manifested by low or elevated total serum pro-
in levels, hypergammaglobulinemia, and elevated β-globulin
vels. The latter abnormality was found even in the absence
clinical symptoms of liver involvement or distrubances in
pid metabolism. Most patients with lupus and periarteritis
dosa had positive mercuric chloride, thymol, and Takata-
ra tests. About 1/3 of all the patients had significant dis-
rbances in liver detoxification. Although hyperbilirubinemia
as present in only 9 patients, 25 had urobilinuria. Increased
GPT and SGOT activities were found in 28 patients with
pus; increased aldolase and alkaline phosphatase levels were
ss marked and pseudocholinesterase activities were reduced
26 cases. Disturbances in aminopherase activity and hypo-
othrombinemia were found in patients with periarteritis
dosa. In general, clinical signs of liver involvement and
sturbances in liver function were seen in patients with all
cute collagen diseases, but particularly in those with acute
pus and scleroderma and, to a lesser extent, those with
ermatomyositis.

055 **METABOLIC ASPECTS OF 4-AMINOPYRAZOLO-PYRIMIDINE-INDUCED FATTY LIVER IN THE
AT.** *(E.)* Puddu, P. (Inst. Biol. Chem., U. Bologna, Italy),
. Ottani, P. Zanetti, and M. Marchetti. *Proc Soc Exp Biol
ed* 130(2)493-496, 1969.

he effect of the adenine analogue, 4-aminopyrazolo (3, 4-D) pyri-
idine (APP), on liver lipid composition, on liver content of
TP, on lipogenesis *in vitro* in liver slices and on serum lipo-
roteins was studied in female albino Wistar rats. The effects
f the administration of ATP and of adenine on APP-treated
ats were also studied. The neutral fats in the liver of APP-
eated rats increased significantly, while the incorporation
*vitro* of $^{14}$C-acetate into total lipids decreased as compared
ith controls. Under the same experimental conditions the
oncentration of serum lipoproteins fell and the liver content
f ATP increased. The administration of APT to APP-treated
ats did not prevent either the development of fatty liver, or
the decrease of serum lipoprotein concentration, or the fall in the incorporation of $^{14}$C-acetate into liver lipids. The administration of adenine to APP-treated rats partially reversed the effects of APP on the lipid content of the liver, on the levels of the serum lipoproteins and the incorporation of acetate into lipids.

6056 **AGGRAVATION OF HEPATIC NECROSIS BY LYSOSOMAL INJURY.** *(E.)* Iturriaga, H. (Mt. Sinai Sch. Med., New York, N.Y.), I. Posalaki and E. Rubin. *Exp Molec Path* 10(3):231-239, 1969.

Lysosomal alterations (vacuolations) were produced in rat liver cells by the i.v. administration of the surface-active agent Triton WR-1339 (200 mg in saline) and the effects upon the hepatic necrosis induced by carbon tetrachloride were observed. The toxic effects of $CCl_4$ were enhanced by Triton WR-1339, probably because of the damage to lysosomes. Periportal as well as centrilobular cells showed dilatation and shattering of the endoplasmic reticulum and complete loss of ribosomes. The soluble fraction of acid phosphatase activity was increased in the Triton and the $CCl_4$ plus Triton groups.

6057 **ACUTE NECROSIS OF THE LIVER CELLS WITH A FATAL OUTCOME.** *(Dut.)* Vos, A. K. (Dijkzigt Acad. Hosp., Rotterdam, Netherlands). *Nederl T Geneesk* 113(25):1099-1102, 1969.

6058 **LIVER DAMAGE CAUSED BY EXTRACTS OF "RATTLEBOX" SEEDS (CROTALARIA). PART II.** *(E.)* Davies, T. C. (Med. Coll. S. Carolina, Charleston). *J S Carolina Med Ass* 65(6):201-202, 1969.

6059 **HALOTHANE ANESTHESIA AND POST-OPERATIVE LIVER NECROSIS. [CASE REPORT]** *(E.)* Lippman, P. A. (Pennsauken, New Jersey). *J Amer Osteopath Ass* 68(1):23-28, 1968.

6060 **HEPATIC COMA.** *(Dut.)* Schalm, L. (Munic. Hosp., Arnhem, Netherlands). *Nederl T Geneesk* 112(3):113-117, 1968.

6061 **RESULTS OF INTRAOPERATIVE LIVER BIOPSIES.** *(Ger.)* Zittel, R. X. (Freiburg, Germany). Pp. 357-358 in *Ikterus.* International Symposium 27 -29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

6062 **COAGULATION FACTORS AS PARAMETER OF LIVER INJURIES IN ACUTE HEPATITIS.** *(Ger.)* Colombi, A. (Basel, Switzerland), H. Thölen, G. Engalhart, Y. Hecht and F. Koller. Pp. 323-326 in *Ikterus.* International Symposium 27 -29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

6063 **THE TREATMENT OF ACUTE HEPATIC FAILURE BY PORCINE LIVER PERFUSION.** *(E.)* Watts, J. M. Dept. Surg., Monash U., Melbourne, Australia). *Med J Aust* 1(7):324-326, 1969.

**6064** **CLINICAL STUDIES OF THE TOXICITY OF THE LONG-TERM USE OF CYCLAMATE IN PATIENTS WITH LIVER AND KIDNEY DISEASE.** *(Ger.)* Zollner, N. (Med. Polyclinic U. Munich, Germany) and K. Schnelle. *Arzneimittelforschung* 17(12):1568-1573, 1967.

**6065** **THE INFLUENCE OF THE "ESSENTIAL" PHOSPHOLIPIDS ON HEPATIC LESIONS CAUSED BY CHRONIC ADMINISTRATION OF ETHANOL AND ALLYLISOSULFOCYANATE.** *(Ger.)* Samochowiec, L. (Dist. Hosp. Infect. Dis., Szczecin, Poland). *Arzneimittelforschung* 17(11):1374-1376, 1967.

**6066** **ALCOHOLIC LIVER DAMAGE OBSERVED IN ANIMAL EXPERIMENTS.** *(Ger.)* von Oldershausen, H. F. (Tübinger, Germany). Pp. 210-216 in *Ikterus.* International Symposium 27 -29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

**6067** **CASE REPORTS OF BILIRUBIN POISONING.** *(Ger.)* Müting, D. (Homburg, Germany). Pp. 98-100 in *Ikterus.* International Symposium 27 -29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

**6068** **ECHINOCOCCOSIS OF THE LIVER.** *(Rus.)* Deineka, I. Ia. (N. I. Pirogov Odessa Med. Inst., USSR) and A. A. Babur. *Vestn Khir Grekov* 99(10):33-37, 1967.

**6069** **FUNCTIONAL ASPECTS OF LIVER TRANSPLANTATION.** *(It.)* Cortesini, R. (Inst. Surg. Pathol., U. Rome, Italy), C. Casciani, A. Arullani, B. Baroni and G. Cucchiara. *Epatologia* 13(4):893-902, 1967.

**6070** **A CASE OF HEPATIC COMA TREATED BY EXCHANGE TRANSFUSIONS.** *(Pol.)* Neyma K. (J. Strusia Munic. Hosp., Poznań, Poland), J. Juszczyk, K Wolko and L. Wolowicka. *Pol Tyg Lek* 23(23):873-875, 19

**6071** **THE EFFECT OF COMPLEX THERAPY ON THE FUNCTIONAL STATE OF THE LIVER IN CHILDREN SUFFERING FROM CHRONIC HEPATITIS AND HEPATOCHOLECYSTITIS OF VARIOUS ETIOLOGI** *(Rus.)* Manuilova, I. N. (Krupskaya Sci. Res. Inst. Protect. Hlth. Child. Youth, Khar'kov, USSR). *Pediatriia* 47(1):61-6 1968.

See also: 5145,5209,5279,5283,5294,5299,5314,5327,5354,5356,5376,5379,5380

### 2 SOME OBSERVATIONS IN THE STUDY OF INFECTIOUS HEPATITIS IN CEYLON: A
SPITAL SERIES. *(E.)* Nagaratnam, N. (Govt. Hosp.,
galle, Ceylon) and F. Sikkander. *J Trop Med Hyg* 72(6):
-148, 1969.

yr study was made of infectious hepatitis in a Ceylon
pital and epidemiological, clinical and laboratory aspects
orded. The incidence of infectious hepatitis increased (129
1963 vs. 216 in 1966). The majority of the cases occurred
ler the age of 14. There did not appear to be any seasonal
iation, but the attack rate was greater in the wet zones.
s may be explained partly by possible water contamination
partly by the increased population density in these areas.
greater incidence among the lower socioeconomic group
ere large families and household congestion are common
be attributed to more person to person contact. The age
iation was similar to that seen in Western countries. There
s a slight preponderance of males over females. The average
ration of illness was between two and four weeks and the
ration increased with age. A varied clinical picture could
present and cause difficulty in diagnosis in the early stages.
kaline phosphatase levels SGOT, SGPT are considered useful
ts. Hematological changes (e.g., the appearance of atypical
nonuclear cells and target cells) were observed.

### 73 AN ASSESSMENT OF GAMMA GLOBULIN AS A MEANS OF DEALING WITH AN OUTBREAK
INFECTIOUS HEPATITIS. *(E.)* Howitt, L. F. (Scottish
me and Hlth. Dept., Edinburgh, Scotland). *Health Bull*
(1):21-24, 1969.

outbreak of infectious hepatitis took place among the more
n 300 staff and patients of a hospital for the mentally re-
ded. Gamma globulin was given to 139 (55 male, 84
nale) and the clinical course, the incidence and severity of
ection compared with an untreated group of 143 (62 male,
female). Twenty-one of 143 controls became infected
mpared to 7 of 139 vaccinated. The clinical illness was mild
4, moderate in 3 in the treated group and mild in 13, mode-
e in 4, and severe in 4 in the untreated group. The fre-
ency of clinical symptoms was similar for the infected in-
iduals of both groups. There was a significant male to fe-
le ratio (6:1) for infection in both groups.

### 74 STUDY OF THE EXOCRINE FUNCTION OF THE PANCREAS IN CHRONIC HEPATITIS
TH $^{131}$I-LABELLED TRIOLEIN AND SCINTIGRAPHY.
*um.)* Cosma, V. (3rd Med. Clin., Inst. Med. Pharm., Cluj,
mania), S. Cotul, I. Szantay, D. Tăpălagă, A. Suciu and V.
a. *Med Interna (Bucur)* 20(7):793-799, 1968.

ncreatic lipase secretion was studied in 23 patients with
tive chronic postviral hepatitis and symptoms of pancreatic
sfunction. Patients with chronic residual hepatitis and post-
patitic cirrhosis were excluded. Controls were 10 normal
bjects with no history of pancreatic disease. Measurements
radioactivity after ingestion of 30 g helianthus oil and 1
C/kg body weight of $^{131}$I-labeled triolein showed that pa-
ents with chronic hepatitis had low plasma radioactivity and
gher urinary and fecal excretion of radioactivity than the controls. The scattering of these values was relatively small except in 1 patient with pancreatic calcification. Exocrine pancreatic activity was also measured with $^{75}$Se-labeled methionine and pancreatic scintigraphy in 8 cases. The results obtained agreed well with $^{131}$I-labeled triolein studies, but they could not be interpreted in 36% of the cases because of technical difficultites.

### 6075 LIVER AND PANCREATIC AUTOANTIBODIES IN CHILDREN WITH VIRAL HEPATITIS DURING THE INFECTION AND IN THEIR RECOVERY.

*(Rus.)* Gol'zand, I. V. (Leningrad Sci.-Res. Inst. Infect. Child., USSR). *Vop Okhr Materin Dets* 13(12):26-30, 1968.

Titers of complete liver and pancreas antibodies and incomplete liver antibodies were determined by complement-fixation and Steffen's method resp., in 164 children with acute viral hepatitis and in 300 children 3-6 yr after discharge. Complete liver antibodies were found in 96.6% of the patients at some time during acute hepatitis. No relation was found between the presence of antibodies and elevated serum bilirubin and SGPT values or the severity of the hepatitis. During the acute stage curves for complete and incomplete antibody titers in individual patients were intermittent in nature. The percentage of patients with complete antibodies was about the same among children given hormones and those given symptomatic treatment but was considerably lower among those given chloroquine. The percentage of children with complete antibodies gradually decreased until, 2 yr after the infection, it had almost reached the same as that in healthy children. The percentage of those with incomplete antibodies was still about 3 times that in healthy children 3-6 yr later. Incomplete liver antibodies were found in a large number of patients with chronic hepatitis, cirrhosis, and primary liver cancer regardless of the nature of the disease. Complete pancreas antibodies were found in 12.9% of these children at some time during the acute stage, in 15% during recovery, and in 5.6% from 3-6 yr after discharge. This involvement of the pancreas in viral hepatitis was confirmed by the results of exocrine function studies.

### 6076 THE FUNCTIONAL AND MORPHOLOGICAL STATUS OF THE STOMACH IN VIRAL HEPATITIS.

*(Rus.)* Kurzhukov, G. P. (Leningrad Med. Inst. Sanit. Hyg., USSR). *Ter Arkh* 40(5):53-58, 1968.

Gastric secretion and histology were studied in 50 patients, aged 17-40 yr, with viral hepatitis and no history of gastrointestinal disease. Studies were run 5-19 days after the onset of jaundice. Aspiration biopsies, performed on 45 patients, showed that 11 patients had no structural changes in the mucosa, but hypersecretion of the superficial and rugal epithelium was evidenced by increased neutral mucopolysaccharides. Superficial gastritis was found in 17 patients, changes in the superficial epithelium and gastric glands were present in 9, and 8 had exacerbated atrophic gastritis. Structural changes in the gastric mucosa were usually associated with inflammatory reactions, but the severity of the inflammation was not related to the morphological condition of the mucosa. Secretion of free acid, pepsin, and total secretion was increased in most fasting subjects but was decreased in patients with atrophic gastritis. Secretion was the same on an empty stomach and after a meal. Increased secretion in fasting subjects was not caused by anatomical changes in the gastric mucosa but is probably the result of disturbances in the neurohumoral mechanisms involved in gastric secretion. No definite relation could be established between the severity of hepatitis and the nature of gastric changes, but it seemed that abnormalities in gastric secretion were associated with mild signs of intoxication and high bilirubin levels. Apparently, morphological changes are not related to the severity of the hepatitis.

6077 **LYMPHATIC FOLLICLES AND IMMUNOLOGIC CELL REACTION IN HUMAN JEJUNAL MUCOSA OBTAINED BY PERORAL BIOPSY IN INFECTIOUS HEPATITIS.** *(E.)* Astaldi, G. (Inst. Pathol., U. Milan, Italy), R. Airo, M. E. Conrad, R. Penna and F. Ceretto. *Advances Exp Med Biol* 5:473-482, 1969.

Observations made on peroral biopsy jejunal specimens obtained at the depth of 110-140 cm from the upper incisor teeth using Crosby's capsule in 10 normal subjects (controls) and in 15 patients with infectious hepatitis who had repeated biopsies at intervals for 1 yr after the onset of disease showed that: Pyroninophilic cellular infiltration (immunologically activated lymphocytes and plasma cells) within the tunica propria of jejunal mucosal specimens from patients with infectious hepatitis was frequently increased, compared with that observed in healthy volunteers. The pyroninophilic cellular infiltration was found during both the acute and the convalescent stages of hepatitis, and persisted long after clinical symptoms and abnormal laboratory studies became normal. In certain specimens the lymphatic follicles in the jejunal mucosa of infectious hepatitis patients were large and more numerous than in the control specimens, and some showed cytological reactions with activation of lymphocytes, and inflammation that in a few instances was of the granulomatous type. The cells responsible for the pyroninophilic cell infiltration within the tunica propria may originate from these activated follicles, and the entire process may be an expression of the local immunological reaction of jejunal mucosa in infectious hepatitis.

6078 **BLOOD TRANSFUSION AND HOMOLOGOUS SERUM HEPATITIS.** *(E.)* Grobbelaar, B. G. (Natal Blood Transfusion Svc., Durban, South Africa), N. L. Becker and A. B. Waters. *Med Proc (Johannesburg)* 15(15): 252-255, 1969.

An epidemiologic survey of 1994 patients receiving blood during a 7 yr period revealed an incidence of 0.04% (8 cases) of jaundice occurring within 1-6 months after the transfusion of a total of 43 U of whole blood or packed cells. Only 2 of the 25 donors who were located had ever been jaundiced. Jaundice attributable to other causes had occurred in 50 others among the survey group. Infectious hepatitis became a notifiable disease in Durban in October of 1966. Of the 221 notifications between October 1966 and December 1968, there was a history of blood transfusion in 6 cases, 4 of which were fatal. Five of the 23 blood donors for this group of 6 patients were suspected of having had hepatitis.

6079 **OXALEMIA AS RELATED TO THE VALUES OF SERUM TRANSAMINASE AND BILIRUBIN LEVELS, DURING VIRAL HEPATITIS.** *(It.)* Battistini, G. (Maurizio Bufalini Hosp., Cesena, Italy), P. Riva and A. Bianchi. *G Clin Med (Bologna)* 50(6):521-542, 1969.

Oxalemia was determined, with the Merz-Maugeri's method, in 61 cases of icterogenic hepatitis. Hyperoxalemia (> 5 mg/100 cc of blood) was found in 43 cases (70%). Hyperoxalemia was found in 34 of 41 cases examined 1-20 days after the appearance of the disease, with an average value of 8.48 mg %; in 5 of 15 cases examined 20-40 days after the appearance of the disease, with a value of 7.04 mg %; and i
1 of 5 cases examined 40-60 days after the appearance of th
disease, with a value of 5.76 mg %. In relation with the transaminase, hyperoxalemia was found in 29 of 132 patien
with elevated SGPT (average 307 UT), with a value of 8.20 mg %; in 6 of 11 cases with a moderate elevation of SGPT (105 UT), with a value of 7.43 mg %; and in 5 of 18 patien
with slightly altered SGPT (47 UT), with a value of 6.64 m
In relation with bilirubinemia, among 32 patients with a tot
bilirubinemia higher than 3 mg %, 25 had hyperoxalemia (8.22 mg %); among 15 patients with an average bilirubinem
of 2.62 mg, 7 had hypeoxalemia (8.92 mg %); among 14 wi
a normal bilirubinemia, 8 had hyperoxalemia (7.21 mg %). Oxalemic curves on 15 cases of hepatitis showed persistent hyperoxalemia even when the transaminase and bilirubinemi
were decreased, indicating a reduction of liver lesions.

6080 **HEMOLYTIC ANEMIA COMPLICATING VIR
HEPATITIS AND G-6-PD DEFICIENCY. [EDITORIAL]** *(E.)* Anonymous. *JAMA* 208(13):2468-2469, 1969.

6081 **ICTERIGENIC HEPATITIS WITH CIRRHOTI
DEVELOPMENT AND CIRRHOSIS WITH ANTINUCLEAR ANTIBODIES. EIGHT CASES.** *(Fr.)* Vachon, A., R. Tête, J. Gauthier, H. Chapuy and M. Silie. *Rev Lyon Med* 18(5):171-187, 1969.

6082 **VIRAL HEPATITIS AND THE AUSTRALIA-
ANTIGEN.** *(Rev.)(E.)* Zuckerman, A. J. (Lon
Sch. Hyg. Trop. Med., England). *Nature* 223(5206):569-57
1969.

6083 **VIRAL HEPATITIS WITH HAEMOLYTIC ANEMIA DUE TO GLUCOSE-6-PHOSPHATE DEHYDROGENASE DEFICIENCY.** *(E.)* Keng, C. B. (U. Singapore). *Singapore Med J* 10(2):83-90, 1969.

6084 **THE MANAGEMENT OF ACUTE VIRAL HEPATITIS.** *(E.)* McKiggan, J. J. (Fac. Med., Dalhousie U., Halifax, Canada). *Canad Family Phys* 15(4): 37-39, 1969.

6085 **HEPATITIS EPIDEMIOLOGY AND PREVENTION.** *(Sp.)* Piédrola Angulo, G. *Medicina (Madrid)* 36(2):255-288, 1968.

6086 **VIRAL HEPATITIS.** *(It.)* Gaglio, L. (Inst. Hyg., U. Turin, Italy). *G Batt Virol Immun* 61(1/4):26-43, 1968.

6087 **FULMINATING VIRAL HEPATITIS: REPORT OF A PATIENT WHO DIED OF ADRENAL APOPLEXY.** *(It.)* Cantarini, G. (Munic. Hosp., Treviso, Italy), G. P. Battacchi and V. Milillo. *Riv Gastroent* 20(1):19-34, 1968.

6088 **THE CLINICAL PICTURE AND TREATMENT OF EPIDEMIC HEPATITIS.** *(Sp.)* Carro Amigo, S. *Med Cir Guerra* 30(1):21-27, 1968.

6089 **THE UNUSUAL CLINICAL BEGINNING OF INFECTIOUS HEPATITIS.** *(It.)* Arcuri, F. (Ospedali Civili di Genova, Italy), L. Robert and N. Piersantelli. *Policlinico [Prat]* 76(23):737-752, 1969.

6090 **SERUM BILE ACIDS IN HEPATOLOGY. IV. HEPATITIS.** *(Fr.)* Rautureau, M. (Saint-Antoine Hosp., Paris, France), B. Chevrel and J. Caroli. *Rev Medicochir Mal Foie* 42(4/5):205-216, 1967.

6091 **HEMAGGLUTINATION IN VIRAL HEPATITIS.** *(Pol.)* Bergiel, A. (Infect. Dis. Clin., Acad. Med., Lodz, Poland). *Pol Tyg Lek* 23(21):799-802, 1968.

See also: 5114,5119,5323,5409,5425

6092 PRESENT PROGNOSIS OF ALCOHOLIC CIRRHOSIS. 189 CASES SEEN BETWEEN 1957 AND 1964. *(Fr.)* Aubertin, E., Y. Sudre, R. Gil and Y. Pret. *Bordeaux Med* 1(8):1407-1413, 1968.

Among 156 cirrhotic patients hospitalized in the period 1957-64, 32 (20%) were still living in 1967. Ten patients (6%) had returned to their professional activity; 9 had complications: 4 edematous ascitic syndrome; 2 digestive hemorrhages and 3 jaundice. Of the 124 deaths, 84 (53%) occurred in the first year. The main causes of death were hepatic coma (46%) and digestive hemorrhages (25%). Compensated cirrhosis had a more guarded prognosis than uncompensated cirrhosis. The presence of jaundice, hemorrhages and disturbances of consciousness were negative factors. A prothrombin time below 50% and a cholesterol lower than 1 g/liter were indicators of lethality. Among 18 patients treated with a hepatic cocktail (salt-free and high protein), 6 showed good immediate responses, but the mortality was 83% and average survival 4.5 months. Treatment with corticoids in 27 patients produced good short-term effects in 11 patients, but follow-up showed a mortality of 88% and an average survival of 6.5 months. Diuretics, tried in 67 produced good results in 54%, the mortality rate was 62%, the average survival time 6 months. Mortality from alcoholic cirrhosis remains high in spite of the varied and useful therapies now available.

6093 PLASMA KININ IN CIRRHOTIC SUBJECTS. *(E.)* Galletti, R (Inst. Spec. Med. Pathol., U. Florence, Italy), L. Matassi, P. Chiarini, L. Vecchiet, G. Buzzelli and N. Marra. *Sperimentale* 118(4):253-261, 1968.

A constantly decreased kinin activity was found in the plasma of 15 male patients, 40 to 50 yr of age, with cirrhosis of the liver. Kinin activity of the glass-activated plasma was assayed through its contractile effects on isolated guinea-pig ileum. A pool of plasma from several normal subjects was used as a control. The measurements were carried out in the presence of atropine, Benadryl or Deserril which antagonize acetylcholine, histamine and serotonin, resp. possibly present in the plasma. Since plasma kinin is known to be pain-producing, the decreased plasma kinin activity in cirrhotic subjects may account for the rather low pain observed in several painful diseases (e.g. rheumatoid arthritis, headache ) when cirrhotic subjects are affected.

6094 ZIEVE'S SYNDROME, ALCOHOLIC HYPERLIPIDEMIA AND HEMOLYTIC ANEMIA. *(Fr.)* Albahary, C. (St-Denis Hosp., France), M. Auffret and J. L. Le Gland. *Presse Med* 76(8):371-375, 1968.

Two cases of Zieve's syndrome are described. An alcoholic, obese female, 45 yr old, was hospitalized in a state of delirium with jaundice and known diabetes. This syndrome was associated with a hyperlipidemic syndrome, and with moderate anemia. Laparoscopy and biopsy indicated cholostasis and steatosis. After moderate corticotherapy and the diabetes being equilibrated by insulin, the patient recovered fully. The second case was an alcoholic male, 31 yr old, (already hospitalized for pre-delirium at the age of 28), affected by cholestatic jaundice, by hyperlipemia with lactescent serum and hypercholesterolemia, and by acute hemolytic anemia characterized by a significant decrease of the red cell half life, without immunological complications. The course of the disease lasted about 1 month with the patient recovering fully. After a review of the biological and clinical character of the Zieve's syndrome, it was concluded that stoppage of alcoholic intoxication allows for a quick and more complete cure than may have been expected initially.

6095 DYSGLOBULINEMIC CIRRHOSIS AND ATYPICAL IMMUNOLOGICAL ASPECTS. *(Fr.)* Varay, A. (Beaujon Hosp., Paris, France), L. Hartmann, M. P. Ollier and J. D. Drain. *Rev Intern Hepat* 17(6):621-634, 1967.

A study of dysglobulinemic cirrhosis, characterized by a selective and preferential increase of one of the gamma $\gamma$M, $\gamma$G, $\gamma$A immunoglobulins, is presented. In a case of cirrhosis with macroglobulinemia and Waldenström syndrome, there was an increase of $\gamma$M; an erythro-sedimentation rate higher than 80 mm for the 1st hr; a positive Sia's test. The main clinical symptoms were: fever, arthralgia, purpura, and multiple neuritis. Anemia with lympho-reticular proliferation of the bone marrow was present. The anatomical lesions of cirrhotic type showed a lympho-histiocystic infiltration of the liver. In a 2nd case of cirrhosis with myelomatous syndrome there was a significant increase of $\gamma$A and less of $\gamma$M, an erythro-sedimentation rate higher than 80 mm and a negative Sia's test. In a 3rd case of cirrhosis with simultaneous increase of all 3 immunoglobulins, there was an erythro-sedimentation rate lower than 80 mm, and a positive Sia's test. In a 4th observation $\gamma$G and $\gamma$M immunoglobulins could precipitate in cold, realizing a cryoglobulinemic cirrhosis, characterized by a hemorrhagic syndrome and purpura. A 5th case of lupoid hepatitis presented hypergammaglobulinemia; there was no preferential increase of some immunoglobulins.

6096 A CONTROLLED STUDY OF THE PROPHYLACTIC PORTACAVAL SHUNT. A FINAL REPORT. *(E.)* Resnick, R. H. (Lemuel Shattuck Hosp., Boston, Mass.), T. C. Chalmers, A. M. Ishihara, A. J. Garceau, A. D. Callow, E. M. Schimmel and E. T. O'Hara. *Ann Intern Med* 70(4):675-688, 1969.

Surgical (48) and medical (45) patients (about 76% of them male, average age about 48 yr) with cirrhosis and esophageal varices participated in a controlled prospective investigation of the prophylactic portacaval shunt procedure for the prevention of bleeding varices. Surgery sharply reduced the risk of esophageal bleeding but failed to improve longevity. Shunted patients have a greater prevalence of hepatocellular failure and are significantly more likely to develop hepatic encephalopathy. Abstinence from alcohol had a beneficial effect in preventing bleeding varices and ascites in unshunted patients but did not significantly improve mortality; continued drinking among surgical patients did not alter any of these variables. Attempts to estimate survival or to delineate clinical factors at selection leading to variceal hemorrhage were unsuccessful. In the management of cirrhosis of the alcoholic in lower socioeconomic groups the prophylactic portacaval shunt should be abandoned.

### 6097 THE INTRAVENOUS GALACTOSE TEST AS INDICATOR OF THE EXTENT OF FIBROSIS IN PATIENTS WITH CIRRHOSIS OF THE LIVER. *(E.)*

Myren, J. (Ullevål Hosp., Oslo, Norway) and P. Kierulf. *Scand J Gastraent* 4(5):453-456, 1969.

Liver biopsy and an i.v. galactose test, performed in 25 adults (19 male, 6 female; ages 15-70 yr) indicated that the i.v. galactose test does not reveal cirrhosis with light fibrosis, but in cirrhosis with severe fibrosis, T/2 (time in min after which the blood concentration of galactose has dropped to half) is significantly prolonged. In 10 control subjects the average T/2 value was 13 min (range 9-15½). In 10 patients with light fibrosis the values were not significantly different from control. But in 10 patients with severe fibrosis, with the fibrotic tissue occupying more than 30% of the liver lobules, a significantly prolonged T/2 of the galactose test was found (about 23½ min). BSP retention was abnormal in 4 out of 7 patients with light fibrosis, this may indicate that the galactose test is less sensitive than the BSP retention test in this series of patients.)

### 6098 SERUM IMMUNOGLOBULIN CONCENTRATIONS IN PATIENTS WITH ALCOHOLIC LIVER DISEASE. *(E.)*

Wilson, I. D. (U. Minnesota Med. Sch., Minneapolis) G. Onstad and R. C. Williams. *Gastroenterology* 57(1):59-67, 1969.

Measurement of the concentration of IgG, IgA, IgM, and one of the subgroups of IgG, $\gamma$G3, in the serum of 105 patients with alcoholism and liver disease of varying severity was performed by single diffusion against specific antisera in agar gel. The patients were divided into 4 groups on the basis of severity of liver disease: group I, alcoholism alone, no sign of liver disease at physical examination; group II, mild to moderate liver disease, hepatomegaly but no ascites or hepatic excephalopathy; group III, advanced alcoholic cirrhosis with ascites or hepatic precoma present within last 6 months, and group IV, death from liver failure. Mean serum immunoglobulin concentrations all increased progressively and significantly ($P < 0.05$) as the liver disease became more severe. Marked individual variations in serum immunoglobulin concentrations were found in each group of patients. Much of the variation in the serum $\gamma$G3 subgroup concentrations within each patient group was related to specific individual genetic differences in the Gm system. The stimulus for increased immunoglobulin synthesis in patients with cirrhosis may be related to an alteration in unknown normal regulatory mechanisms influenced by the severity of the hepatic failure.

### 6099 INCIDENCE OF LOW SERUM ZINC IN NON-CIRRHOTIC PATIENTS. *(E.)*

Sullivan, J. F. VA Hosp., Omaha, Neb.), M. M. Parker and J. D. Boyett. *Proc Soc Exp Biol Med* 130(2):591-594, 1969.

The serum zinc concentration in 225 hospitalized patients (71 cirrhotic and/or alcoholic) indicated that 68% of the cirrhotics and 21% of the other patients had zinc levels 3 standard deviations below the normal mean (less than 60 $\mu$g/100 ml). Magnesium and calcium were also lower in the serum of cirrhotics with low zinc but was independent of zinc concentration in the other groups. Urinary excretion of zinc and magnesium were comparatively great in cirrhotics despite decreased serum concentration. A group of patients with low serum zinc of uncertain etiology had diminished zinc excretion. Despite the presumed stability of protein binding of zinc, the occurrence of low serum levels of zinc, calcium and magnesium in the cirrhotic patients with abnormally low serum albumin and $\alpha_2$ globulin suggests that the decreased serum content is related to diminished serum proteins.

### 6100 ABSORPTION AND DISTRIBUTION OF ETHANOL DURING ALTERED PORTAL DYNAMICS IN THE DOG. *(E.)*

Witte, C. L. (St. Louis City Hosp., Mo.), S. Asnis, M. H. Witte, O. F. Sterle and Y. C. Chung. *Proc. Soc Exp Biol Med* 130(4):1288-1293, 1969.

Portal blood flow was altered in 19 healthy dogs to simulate abnormalities in patients with hepatic cirrhosis and the absorption of ethanol and its transport in blood and thoracic duct lymph was studied and compared to control dogs. In dogs with thoracic duct cannulation in the neck (3) and in the right chest (5), ethanol was rapidly absorbed into the portal vein and then widely distributed throughout the intravascular compartment while in thoracic duct lymph a slower rise occurred. In 3 dogs with caval constriction, ethanol entered the thoracic duct lymph more rapidly and portal blood more slowly than in controls, but after 1 hr the distribution was similar to controls. In 4 dogs with two-stage portal vein ligation, ethanol absorption was significantly delayed with concentration in blood and thoracic duct lymph reaching only ½-2/3 the levels in controls. In 4 dogs with end-to-side protacaval shunt, absorption and distribution of ethanol was similar to controls, although extraction across the liver was low. These findings may be applicable to patients with hepatic cirrhosis who have ingested large quantities of ethanol and continue to do so after portacaval shunt.

### 6101 THE COELIAC AXIS AND ITS BRANCHES IN SPLENOMEGALY AND LIVER DISEASE. *(E.)*

Blendis, L. (King's Coll. Hosp., London, England), L. Kreel and R. Williams. *Gut* 10(2):85-90, 1969.

An analysis of 161 selective celiac arteriograms showed that variations in the width of the celiac axis in cirrhosis were closely related to changes in the splenic artery. The splenic artery was significantly dilated in patients with portal hypertension and in those patients with a portacaval anastomosis. There was a close correlation between splenic artery dilatation and total splenic blood flow, the latter being correlated with increased splenic size. Dilatation of the main hepatic artery was not found in cirrhosis although it was a common finding in patients with portacaval anastomosis or a hepatic tumor. Splenic enlargement and dilatation of the splenic artery were found in patients with vascular hepatic tumors, possibly related to increased portal blood flow.

6102 A COMPARISON OF THE ORAL FRUCTOSE AND AMMONIA TOLERANCE TESTS IN CIRRHOSIS. *(E.)* Grace, N. D. (Tufts U. Sch. Med., Boston, Mass.), D. O. Castell and M. H. Wennar. *Arch Intern Med (Chicago)* 124(3):330-335, 1969.

Results of the fructose and ammonia tolerance tests were compared in 23 patients with cirrhosis (14 men 9 women, aged 24-65 yr). Five had end-to-side portacaval shunts. There was good correlation between the arterial ammonia and venous fructose values ($r = +0.80$). The ability of the fructose tolerance test to separate patients with mild from those with severe cirrhosis was statistically significant ($P < 0.01$). Mean values for peak serum fructose were 23.3 ± 3.2 mg/100 ml (± 1 SE) in patients with mild cirrhosis and 41.3 ± 4.4 mg/100 ml in patients with severe cirrhosis. There was no correlation between abnormal results of fructose tolerance tests and demonstration of esophageal varices by roentgenogram taken after barium swallow. This test also failed to separate patients with surgical portacaval shunts from other cirrhotic patients. The fructose tolerance test (fructose given orally) appears to be a safe, practical substitute for the more difficult ammonia tolerance test in evaluation of portal hypertension and collateral circulation in patients with cirrhosis.

6103 CONSTITUTIONAL FACTORS IN LIVER CIRRHOSIS. *(Ger.)* Wewalka, F. (1st Med. U. Clin., Vienna, Austria). *Deutsch Med Wschr* 94(36):1827-1829, 1969.

6104 RETROGRADE FLOW OF PORTAL VEIN BLOOD IN PATIENTS WITH CIRRHOSIS. *(E.)* Kessler, R. E. (VA Hosp., New York, N. Y.), D. A. Tice and D. S. Zimmon. *Radiology* 92(5):1038-1042, 1969.

6105 EXCHANGE TRANSFUSIONS FOR INTRACTABLE HEPATIC COMA. SUCCESSFUL TREATMENT OF A PATIENT WITH ALCOHOLIC HEPATITIS. *(E.)* Szwed, J. J. (Indiana U. Sch. Med., Indianapolis), T. W. Grisell and C. L. Medenhall. *Arch Intern Med (Chicago)* 123(4):441-444, 1969.

6106 HOW SHOULD WE SELECT PATIENTS FOR PORTACAVAL SHUNTING PROCEDURES? (EDITORIAL) *(E.)* Wilson, E. C. *Amer J Dig Dis* 14(7):521-523, 1969.

6107 ANTIPROTEASE DEFICIENCY AND FAMILIAL INFANTILE LIVER CIRRHOSIS. *(E.)* Gans, H. (U. Minnesota Hosp., Minneapolis), H. L. Sharp and B. H. Tan. *Surg Gynec Obstet* 129(2):289-299, 1969.

6108 ALCOHOL AND LIVER DISEASE. *(Rev.) (E.)* Galambos, J. T. (Woodruff Med. Ctr., Emory U., Atlanta, Ga.). *Amer J Dig Dis* 14(7):477-490, 1969.

6109 DIABETES MELLITUS AND LIVER CIRRHOSIS. *(E.)* Coppo, M. (Inst. Clin. Med., U. Modena, Italy) and G. Di Marco. *Acta Diabet Lat* 6(1):121-128, 1969.

6110 RENAL TUBULAR DYSFUNCTION ASSOCIATED WITH ALCOHOLISM AND LIVER DISEASE. [CASE REPORT] *(E.)* Matz, R. (Montefiore Hosp., Bronx, New York), J. Christodoulou, N. Vianna and J. Ruwitch. *New York J Med* 69(10):1312-1314, 1969.

6111 SIGNIFICANCE OF GOT/GPT QUOTIENTS IN THE DIAGNOSIS OF THE DEGREE AND PROGRESS OF LIVER CIRRHOSIS. *(Ger.)* Busch, D. (Freiburg, Germany) and K. Fernbacher. Pp. 315-316 in *Ikterus.* International Symposium 27 -29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

6112 COAGULOPATHY EXPENDITURE AND ANTIPLASMIN ACTIVITY IN LIVER CIRRHOSIS. *(Ger.)* Hörder, M. H. (Giessen, Germany). Pp. 326-329 in *Ikterus.* International Symposium 27 -29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

6113 PORTAL PLETHORA IN CIRRHOSIS OF THE LIVER AND ITS INFLUENCE ON CLINICAL AND BIOCHEMICAL FINDINGS. *(Ger.)* Knežević, S. (Med Fac., Zagreb, Yugoslavia). *Wien Med Wschr* 117(37):817-829 1967.

6114 THE PATHOGENESIS OF HYPOXEMIA IN PATIENTS WITH LIVER CIRRHOSIS. *(Gr.)* Goulis, G. (Thessaloniki, Greece), A. Morali and E. Panayotopoulos. *Galenus* 9(10):625-647, 1967.

6115 ELECTRON MICROSCOPY FINDINGS IN LIVER CIRRHOSIS. *(Ger.)* Cossel, L. (Inst. Pathol. Karl Marx U., Leipzig, Germany). *Deutsch Z Verdau Stoffwechselkr* 27(5/6):157-166, 1967.

6116 SERUM BILE ACIDS IN HEPATOLOGY. II. CIRRHOSIS OF THE LIVER. *(Fr.)* Rautureau M. (Saint-Antoine Hosp., Paris, France), B. Chevrel and J Caroli. *Riv Medicochir Mal Foie* 42(4/5):172-184, 1967.

6117 ALCOHOLISM IN THE PROVINCE OF PERUGIA FROM 1957 to 1965. *(It.)* Mancini, P. and R. Ughi. *Riv Neurobiol* 13(1):115-120, 1967.

6118 HYPERESTROGEURIA IN CIRRHOSIS. CHROMATOGRAPHY AFTER ESTRADIOL BENZOATE ADMINISTRATION. *(Fr.)* Linquette, M. (Munic. Hosp., Lille, France), J. P. Gasnault, J. Dupont-Lecompte and A. Racadot. *Sem Hop (Paris)* 43(44):2714-2728, 1967.

6119 ADRENAL AND THYROID AUTO-ANTIBODI IN A PATIENT WITH "IDOPATHIC" ADDISO DISEASE AND LIVER CIRRHOSIS ASSOCIATED WITH CANCER. CASE REPORT. *(It.)* Ziliotto, D. (Inst. Med. Semeiotics, U. Padua, Italy), I. Mastrogiacomo and P. Borini. *Policlinico [Med]* 74(5):235-243, 1967.

120 **SURGICAL TREATMENT OF ASCITES IN LIVER CIRRHOSIS.** *(Cz.)* Vojtíšek, V. (Surg. in., Charles U., Prague, Czechoslovakia), A. Chlumská and . Fürst. *Rozhl Chir* 47(1):37-45, 1968.

121 **JAUNDICE IN CHRONIC HEPATITIS AND CIRRHOSIS OF THE LIVER.** *(E.)* De Groote, (St. Rafael U. Clin., Louvain, Belgium). Pp. 171-176 in *terus.* International Symposium 27-29 October 1967. Beck, ., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

122 **ALCOHOLIC HEPATITIS IN JAUNDICE.** *(Ger.)* Thaler, H. (Vienna, Austria). Pp. 216-218 *Ikterus.* International Symposium 27 -29 October 1967. eck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 p.

6123 **DIETARY DEPENDENT SHIFT AND CLINICAL DIAGNOSTIC SIGNIFICANCE OF ALKALINE PHOSPHATASE IN THE SMALL INTESTINE DURING LIVER CIRRHOSIS.** *(Ger.)* Klein, U. E. (1st Med. Clin., U. Kiel, Germany), H. C. Drube and H. T. Hansen. *Verh Deutsch Ges Inn Med* 73(4):241-244, 1967.

6124 **CONTRIBUTION TO THE SURGICAL TREATMENT OF PORTAL HYPERTENSION.** *(Por.)* Okumura, M. (Fac. Med., U. São Paulo, Brazil). *Rev Hosp Clin Fac Med S. Paulo* 23(4):183-202, 1968.

6125 **ALCOHOLISM, FATTY LIVER, AND HEPATIC CIRRHOSIS.** *(Ger.)* Böttner, H. (Evangelical Hosp., Mülheim/Ruhr, Germany). *Med Welt* 19(52):2857-2862, 1968.

See also: 5167,5234,5325,5350,5353,5926,5954,6113,5099

6126 **SECONDARY OPERATIONS ON THE BILE DUCT. A STUDY OF 168 PATIENTS.** *(E.)* White, T. T. (Swedish Hosp. Med. Ctr., Seattle, Wash.) and J. Bourde. *Northwest Med* 68(7):644-645, 1969.

Of 3407 biliary explorations performed during 1956 through 1966 there were 168 late secondary operations. There were 84 searches for gallstones in the bile duct with 76 stones found. Another 34 patients were reexplored for removal of a residual cystic duct or gallbladder remnant. There were 23 second operations for cancer; of these 14 were primary cholecystectomies for gallbladder disease the surgeon being unaware that the underlying problem was carcinoma of the bile duct in 7 and of the pancreas in 7, until symptoms persisted after surgery. In 8 of the 9 patients without associated gallstones, unsuspected tumors of gallbladder or pancreas were found at the first operation and reoperation was necessary for definitive therapy. A few other patients had stenosis of the ampulla of Vater, pancreatitis and minor bile duct leaks.

6127 **THE ROLE OF BACTERIAL INFECTION IN ACUTE CHOLECYSTITIS: A PROSPECTIVE CLINICAL STUDY.** *(E.)* Watson, J. F. (Brooke Gen. Hosp., Ft. Sam Houston, Texas). *Milit Med* 134(6):416-426, 1969.

Cultures were obtained from the peritoneum, gallbladder contents, common duct and a full section of the gallbladder wall at the time of cholecystectomy for acute cholecystitis in 28 patients during 27 months. Eleven patients (7 men and 4 women with an average age of 37 yr) with negative cultures, 2 of whom had complications (wound abscess, 1, gallbladder perforation, 1). Stones were present in each of these and none had diabetes. Seventeen patients (14 men and 3 women with an average age of 57 yr) had at least 1 positive culture and 7 of these had complications (gallbladder perforation, 3, wound infection, 3, pneumonia, 1, and cholangitis, 1). Five were without stones and 6 had diabetes. The duration of symptoms was similar in both groups. All of the organisms cultured were sensitive to Kanamycin.

6128 **THE ROLE OF BILE IN DISTURBANCES OF PHOSPHORUS METABOLISM FOUND IN OBSTRUCTIVE JAUNDICE.** *(Rus.)* Rubinov, R. S. (Inst. Normal Pathol. Physiol., Acad. Med. Sci. USSR, Moscow). *Biull Eksp Biol Med* 65(4):45-48, 1968.

The rate of absorption of $^{32}P$, given p.o. as $Na_2H\ ^{32}PO_4$, by the intestine was decreased in 10 dogs with obstructive jaundice produced by ligation and transection of the common bile duct; it remained decreased throughout the course of the disease. Shortly after surgery an increase occurred in the specific radioactivity of plasma phospholipids and serum bilirubin. Shortly before death total serum phosphorus and serum phospholipids decreased to values lower than those of the controls. This was accompanied by a decrease in serum bilirubin. When $^{32}P$ was administered i.v., blood radioactivity decreased more slowly in jaundiced dogs than in controls. These results confirm the hypothesis that in obstructive jaundice phospholipids from the bile enter the blood and circulate in it, producing hyperphospholipemia. Because of the hepatitis which develops, this effect is not seen shortly before death.

6129 **PRIMARY CARCINOMA OF THE GALLBLAD AND OF EXTRA-HEPATIC BILIARY DUCTS. (A STUDY OF 13 CASES).** *(It.)* Concilio, A. (Salerno Hosp Italy) and V. Anardi. *Riforma Med* 82(25):681-687, 1968.

In 10 cases of primary carcinoma of the gallbladder (7 of the gallbladder; 2 of the gallbladder and cystic duct; 1 of the gallbladder and hepatic duct) lithiasis was found 7 times, while in 3 cases of cancer of the extra-hepatic biliary ducts (2 of th common bile duct; 1 of the Vater's papilla) an association wit calculosis was found 2 times. The main symptoms were: hepatic colics, loss of weight, jaundice, and continuous pains. The gallbladder cancers were well limited, with papillar-vegetant aspect in 5 cases; with diffuse-infiltrated forms with thickened and retracted gallbladder in 4 cases, and with lardacein walls in 1 case. Of 3 tumors of the extra-hepatic biliary ducts, 2 were limited stenotic neoplasms, and 1 infiltrating with thickened and retracted walls. Histologically, all 13 tum were adenocarcinomas. A laparotomy and biopsy were performed only in 5 cases. In the other cases partial hepatectom was performed in association with cholecystectomy. In the case of the Vater's papilla tumor a choledochoduodenostomy was performed. In 2 cases of carcinoma of the common bile duct, other than the cholecystectomy, a choledochotomy wit drainage by the Kehr's tube was performed.

6130 **THE DUODENUM AFTER CHOLECYSTECTO HISTOLOGICAL AND SEMIMICROSCOPIC FINDINGS.** *(Ger.)* Koelsch, K. A. (Dist. Hosp., Magdeburg-Altstadt, Germany). *Deutsch Z Verdau Stoffwechselkr* 28(2/4):283-286, 1968.

Examination with a magnifying glass showed changes in the structure of duodenal villi, which were often grotesque in nature, in 76% of cholecystectomized patients. The most severe changes, found in 12.5%, were similar to those found in sprue; 90.6% of the patients had mild to severe duodenal inflammation. In 10 of 14 cases moderately severe to severe inflammation was associated with radiologically diagnosed du denal dyskinesia.

6131 **THE DISTRIBUTION OF ABO BLOOD GROU IN PATIENTS WITH CHOLELITHIASIS AND GALLBLADDER CARCINOMA.** *(Ger.)* Schmauss, A. K. (Friedrichshain Hosp., Berlin, Germany), L. Perlin and F Küpferling. *Deutsch Z Verdau Stoffwechselkr* 28(5/6):317-321, 1968.

ABO blood groups and Rh factors were determined in a grou of 2727 women and 355 men with cholelithiasis, in 100 patients with gallbladder carcinoma, and in a normal population of 15,154 subjects. A significant excess of patients with chol lithiasis had A group blood. The percentage of those with group A blood was highest among patients under 30 yr old. This suggests that Europeans with group A blood get cholelit asis earlier in life and more frequently than those with group B or O. The percentage of patients with group A blood was higher among patients with gallbladder cancer than among controls, but the distribution of blood groups among these patients was not significantly different than that among the normal population. The distribution of Rh factors was the s in patients and controls.

### 132 SEQUELAE AND RESIDUAL SYMPTOMS AFTER CHOLECYSTECTOMY. *(Ger.)*

Grözinger, K. H. (Surg. Clin., U. Heidelberg, Germany) and . Krumhaar. *Deutsch Z Verdau Stoffwechselkr* 28(2/4): 59-266, 1968.

Questionnaires filled out by 1108 of more than 2000 choleystectomized patients showed that 285 (23%) still had sympoms. No significant changes were found in patients with associated diabetes or heart disease, but about 75% had gained -20 kg. I.v. cholangiograms run on 186 cholecystectomized atients with symptoms showed that 13 had dilatation of the ommon bile duct without stones, 8 had stones in the common ile duct, 6 had stones in the papilla, and 3 had very long allbladder stumps. Radiological examinations of the stomach nd intestine, performed on 89 patients, showed that 7 had iliary tract and duodenal adhesions, 24 had peptic ulcers, 13 ad hiatus hernias, and 12 had signs of chronic indurating panreatitis. Detailed clinical examinations, made on 160 patients whose postoperative symptoms could not be accounted for y radiological examinations revealed that 36 had hepatomegaly, had splenomegaly, 68 were obese, 26 had meteorism, and 1 ad ascites. Liver biopsies, performed on 30 of these patients, howed that 12 had fatty liver, 10 chronic fibrotic pericholanitis and cholangiolitis, 3 hepatic fibrosis, and 1 miliary uberculosis. The findings were normal in only 3 cases. Thus, ymptoms after cholecystectomy may be due to diagnostic rrors made before surgery, errors in surgical technique, and other diseases which might not have been present before urgery.

### 6133 ANIMAL EXPERIMENTS ON A SUTURING TECHNIQUE FOR THE COMMON BILE DUCT.

*Ger.)* Giessler, H. (Surg. Clin., U. Würzburg, Germany), J. Mahmoudi and H. von Babo. *Bull Soc Int Chir* 27(3):177-182, 968.

After the common bile duct had been resected in 18 dogs it was reconstructed with homologous arterial transplants sutured manually. Stenoses developed near the anastomosis in all 18 cases. In experiments on 16 dogs an end-to-end anastomosis of the common bile duct was made with an American instrument designed for making vascular sutures. Of the 3 animals which died, 1 had incompetent sutures, 1 a volvulus of the small intestine, and 1 developed circulatory failure during surgery. Cholangiograms made on the remaining 13 animals 3 weeks and 11 months after surgery showed no evidence of biliary stenosis. This technique could be used in humans for carcinomas and strictures of the biliary tract.

### 6134 STUDIES ON ACUTE CHOLECYSTITIS. A CLINICAL AND EXPERIMENTAL STUDY IN HUMANS AND IN ANIMALS WITH SPECIAL REFERENCE TO LIVER FUNCTION AND PATHOGENESIS. *(E.)*

Gottfries, A. (2nd Dept. Surg., U. Göteborg, Sweden). *Acta Chir Scand* 134(Suppl. 393):1-32, 1968.

Patients with acute cholecystitis were studied: 1) to see if liver function is affected, and 2) to find out if any factor in the bile is of etiological significance in the disease. Animal experiments tested whether lysolecithin injected into the occluded gallbladder would produce macro- and microscopic changes similar to those found in human acute cholecystitis. Liver function was studied mainly by the determination of the bile acid conjugation capacity of liver tissue obtained at operation in the very acute stage. Conjugation capacity was compared with routine serum liver tests, including BSP. Liver biopsy specimens from a few patients were subjected to subcellular fractionation and reactions of isolated mitochondria were compared with the bile acid conjugation capacity of liver homogenates. It was found that the bile acid conjugation capacity of liver homogenates from patients was decreased. The retention of BSP was increased and was inversely correlated with the liver's bile acid conjugation capacity. High doses of carbohydrates given preoperatively restored the liver's bile acid conjugation capacity almost to the level of controls, but this had no effect on BSP retention. Oxygen uptake, P/O ratios and respiratory control indexes in isolated liver mitochondria from patients were similar to those from controls. The oxygen uptake for alpha-ketoglutarate was significantly correlated with the liver's capacity to conjugate cholic acid. Studies of hepatic and gallbladder bile showed that the concentration of lysolecithin was significantly increased in hepatic bile and in gallbladder bile (provided it was colored) and the concentration of lecithin and cephalin was significantly decreased in gallbladder bile. Free bile acids were not found in either bile or only in trace amounts. Bacterial growth was found in either bile or only in trace amounts. Bacterial growth was found in the bile of 11 of 40 patients studied. *E. coli* predominated. Most of the 11 patients were more than 65 yr old. Experiments in rabbits examined 48 hr post-injection showed that lysolecithin produced changes similar to those found in humans with acute cholecystitis.

### 6135 THE NATURE AND SURGICAL SIGNIFICANCE OF COMMON DUCT STONES. *(E.)*

Madden, J. L. (St. Clare's Hosp., New York, N. Y.), L. Vanderheyden and S. Kandalaft. *Surg Gynec Obstet* 126(1):3-8, 1968.

In the 18-yr period (1949-1967) cholecystectomies were performed on 582 patients, in 21% (115) of whom concomitant explorations of the common duct were carried out. Stones were present in 54 (45.3%). Common duct stones were also present during this period in an additional 53 patients in whom the exploration was done either as a primary or a secondary procedure. There were no deaths in the total of 107 patients; 44 (41.7%) were men, and 63 (58.8%) were women. The age range was 24-91, average 5.8 yr. About 3 of 4 (77 patients) were between 50 and 79 yr. The symptoms were: pain in 85 (79%), jaundice in 73 (68%) accompanied by pain in 53 (73%). About 1 of 4 of the patients with stones in the common duct has painless jaundice. Stones were classified as primary, secondary, and combined. Of the 107 patients 60 (56.1%) had primary or autochthonous stones, these (the earthy or stasis stones of Aschoff) had their origin in the common duct. In 12 (20%) of these 60 patients no stones were present in the gallbladder. In 40 (37.3%) of the 107 patients the stones were secondary, formed primary in the gallbladder and then migrating through the cystic into the common duct. In the remaining 7 (6.5%) patients the stones were of the combined type (both primary–common duct and secondary–gallbladder–stones being present). Forty-one (68.3%) of the 60 patients with primary stones had single stones while only 10 (25%) of the 40 with secondary stones had single stones. There was also a relation between the type of stone and the size of the common duct: In 14 (23.3%) of the 60 patients with primary stones the external diameter of the common duct was enlarged to 3-4 cm. Only 5 (12.5%) of the 40 patients with secondary stones had ducts of this size. Nine patients with secondary stones had common ducts enlarged to 4 cm or more, while none with secondary stones had such enlargements. It was also observed that the more times a duct is explored, the more likely that a primary or recurrent type stone will be found. Stenosis of the papilla of Vater was a concomitant finding in 28 (46.6%) of the 60 patients with primary stones and in only 4 (10%) of the 40 with secondary stones. Analysis also showed that patients with primary common duct stones, with or without concomitant stenosis of the papilla of Vater, had had a significantly higher number of reoperations than those with secondary stones.

6136 **THE POST-CHOLECYSTECTOMY SYNDROME. RADIOLOGICAL AND STATISTICAL STUDIES IN 250 PATIENTS.** *(It.)* Gavelli, G. P. (L. Galvani Inst. Radiol., U. Bologna, Italy), R. Roversi and L. De Florio. *Riv Gastroent* 20(1):1-11, 1968.

Three months to 15 yr after cholecystectomy, 250 patients, all with symptoms, were studied by ordinary cholangiography (200) and by perfusion cholangiography (50). Of the 200 visualized by usual cholangiography, the results were negative in 38 (19%), insufficient for a clear diagnosis in 57 (28.5%) and good in 105 (52.5%). Of the 50 visualized by perfusion cholangiography, the results were negative in 4 (8%), insufficient in 7 (14%), and good or excellent in 39 (78%). The radiologic diagnosis in the 208 cases with positive findings was: normal in 125 and pathologic in 83 (sclerotic papillitis in 19 (9%), residual or recurrent calculi in 26 (12%), insufficiency of the sphincter of Oddi in 25 (11.5%), pericholedochal adhesions in 7 (4.5%), and inoperable bilio-digestive fistula in 6 (3%). In 208 patients it was possible to measure the diameter of the common bile duct: the average was 0.818 cm, not substantially different from the 0.740 cm and the 0.780 cm reported by others. A bile duct defined as abnormal (more than 1 cm in diameter) was found in 42 patients (21%).

6137 **ATRESIA OF THE EXTRAHEPATIC BILIARY DUCTS.** *(Fr.)* Gubern Salisachs, L. (Dept. Pediat., U. Barcelona, Spain). *Arch Franc Pediat* 25(4):415-437, 1968.

A study of 46 patients with obstructive jaundice showed that 38 were verified at surgery (36 of whom had extrahepatic atresia), 3 had atresia of the choledochus (successfully treated by surgery), and 5 (3 extrahepatic atresia, 1 intrahepatic atresia and 1 extra- and intrahepatic atresia) were verified at autopsy. Four were treated medically (2 by intubation of magnesium sulfate into the duodenum, and 2 by i.v. injection of dycholium) with good results. The determination of serum leucine aminopeptidase in 4 and the use of radioactive Rose Bengal in 1 were diagnostic aids. Surgical intervention is necessary if the possible existence of atresia has not been eliminated by other means.

6138 **MORPHOLOGICAL MODIFICATIONS OF THE BILIARY DUCTULES IN THE COMMON CIRRHOSIS (A STUDY BY METHOD OF INJECTION AND GRAPHIC RECONSTRUCTION).** *(Fr.)* Diebold, J. (Fac. Med., Paris, France), J. P. Camilleri and T. Caulet. *Ann Anat Path (Paris)* 13(2):239-252, 1968.

The biliary ducts of 15 cirrhotic livers were injected with radiopaque substances or dyes, or with plastic substances and studied by X-ray. Three other cirrhotic livers were studied using graphic reconstruction. The results showed modificatio of the biliary system due to hyperplasia of the small portal ducts, development of the structures communicating with biliary ducts, and formation of pseudo-tubular noncommunicating structures.

6139 **GALLSTONE ILEUS.** *(E.)* Manax, S. J. (Grace Hosp., Detroit, Mich.). *J Abdom Surg* 11(9):182-187, 1969.

Eleven cases (8 females, 3 males with an average age of 74.2 yr) of gallstone ileus were observed during an 11-yr period. The stones were located in the ileum (9), jejunum (1), and duodenum (1). All presented with anorexia, nausea and vom ing. Ten of the 11 experienced abdominal pain. Five had ha previous gallstone symptoms. Seven had cardiorespiratory disease. Plain films of the abdomen revealed air in the biliary tree in 4 and evidence of small bowel obstruction in all 11. Nine patients had enterotomies, 1 had displacement of the stone into a Meckel's diverticulum which was then excised, and 1 had the stone milked into the cecum to allow rectal passage. All of the 4 operative deaths were associated with severe cardiorespiratory disease. Only 1 patient underwent simultaneous closure of the fistula and she died 11 days postoperatively.

6140 **CHOLEDOCHAL CYST IN CHILDREN. [CAS REPORT]** *(E.)* Mahour, G. H. (Mayo Clin., Rochester, Minn.) and H. B. Lynn. *Surgery* 65(6):967-971, 1969.

6141 **A FIFTY-SIX YEAR OLD WOMAN WITH JAUNDICE AND PULMONARY HYPERTENSI [CASE REPORT]** *(E.)* Anonymous. *Amer J Med* 47(2): 287-298, 1969.

6142 **GRANULAR CELL MYOBLASTOMA OF THE COMMON BILE DUCT. [CASE REPORT]** *(E.)* Whitmore, J. T. (Pennsylvania Hosp., Philadelphia), J. P. Whitley, P. LaVerde and J. J. Cerda. *Amer J Dig Dis* 14(7):516-520, 1969.

6143 **PREGNANCY, CHOLESTEROL METABOLISM AND GALLSTONES.** *(E.)* Glenn, F. (New York Hosp.-Cornell Med. Ctr., N. Y.)and C. K. McSherry. *Ann Surg* 169(5):712-723, 1969.

6144 **SURGICAL TECHNICS IN PELVIC EXENTER- TION AND ILEAL BLADDER CONSTRUCTIO** *(E.)* Osborne, R. W. (Tacoma, Wash.) and S. W. Tuell. *Ame J Surg* 118(2):218-224, 1969.

6145 **CHOLECYSTITIS WITH GALL-STONES IN INFANCY AND CHILDHOOD. [CASE REPO** *(E.)* Carswell, W. R. (Mater Misericordiae Hosp., Palmerston North, New Zealand) and J. D. Willis. *Brit J Surg* 56(7):547 548, 1969.

6146 CONGENITAL ATRESIA OF THE COMMON BILE-DUCT. [CASE REPORT] *(E.)* Sturdy, D. E. (Royal Gwent Hosp., Newport, England). *Brit J Surg* 56(6):443-446, 1969.

6147 SEVERE INCIDENT CAUSED BY A CONTRASTING AGENT DURING AN INFUSION CHOLANGIOGRAPHY. *(Ger.)* Freitag, J. (Radiol. Inst., Med. Acad. Magdeburg, Germany) and R. Morgenstern. *Deutsch Gesundh* 24(24):1109-1110, 1969.

6148 THE TREATMENT OF ACUTE CHOLECYSTITIS. *(E.)* Lindahl, F. (Munic. Hosp., Slagelse, Denmark) and C. S. Cederqvist. *Acta Chir Scand* Suppl. 396:9-15, 1969.

6149 THE ROLE OF TRAUMA IN DEVELOPMENT OF METASTATIC TUMOR. *(E.)* Naji, A. F. (Case Western Reserve U. Sch. Med., Cleveland, Ohio), W. E. Bruck and D. Renner. *Ohio Med J* 65(6):597-600, 1969.

6150 ATTEMPTED EVALUATION OF THE DIAGNOSTIC TEST WITH OLIVE OIL TAGGED WITH $^{131}$I IN DIFFERENTIATION OF PARENCHYMAL AND OBSTRUCTIVE JAUNDICE. *(Pol.)* Boroń, P. (Infect. Dis. Clin., Acad. Med., Bialystok, Poland), Z. Gorczyńska, E. Trembaczowski, A. Wicik and J. Kucharski. *Pol Tyg Lek* 23(26):975-977, 1968.

6151 PERSONAL EXPERIENCE WITH OPERATIONS IN THE BILIARY TRACT AS A TREATMENT FOR CARRIERS OF TYPHOID AND PARATYPHOID BACTERIA IN THE BILE. *(Cz.)* Pánek, V. (Fac. Pediat. Med., Charles U., Prague, Czechoslovakia) and J. Havlík. *Rozhl Chir* 47(1):46-52, 1968.

6152 LATE RESULTS OF SURGICAL TREATMENT OF CHOLELITHIASIS. *(Pol.)* Kozak, E. (L. Rydygiera Munic. Hosp., Wroclaw, Poland) and M. Torosiewicz. *Pol Tyg Lek* 23(23):866-868, 1968.

6153 CHOLESTATIC JAUNDICE IN INFANTS. *(Pol.)* Baszczyński, J. (1st Pediat. Clin., Acad. Med., Lodz, Poland), J. Jeske and A. Sysa. *Wiad Lek* 21(10):821-823, 1968.

6154 BILIARY LITHIASIS AND A VERTEBRAL OSTEOPHYTE. *(Fr.)* Levame, J. H. (Hlth. Service, Nanterre, France), J. P. Lemoine and P. Détrie. *Presse Med* 76(9):440, 1968.

6155 GALLBLADDER DISEASE IN YOUNG PEOPLE. *(E.)* Laws, H. L. (Anniston, Ala.). *Amer Surg* 35(7):480-481, 1969.

6156 ANOMALOUS CYSTIC AND COMMON BILE DUCTS ASSOCIATED WITH CHOLECYSTITIS. [CASE REPORT] *(E.)* Watson, J. F. (Brooke Gen. Hosp., Ft. Sam Houston, Texas). *Amer J Surg* 118(3):459-462, 1969.

6157 DOUBLE GALLBLADDER. [CASE REPORT] *(E.)* Palmisano, D. J. (Charity Hosp. Louisiana, New Orleans). *Amer J Surg* 118(3):463-466, 1969.

6158 INDICATIONS, METHODS AND RESULTS OF SPHINCTEROTOMY IN SURGERY OF THE COMMON BILE DUCT. *(It.)* Prior, C. (Surg. Clin., Siena, Italy) and L. Botta. *Rass Arch Chir* 6(1):49-57, 1968.

6159 PROLONGED OBSTRUCTIVE JAUNDICE. *(E.)* Talamo, R. C. (Massachusetts Gen. Hosp., Boston) and W. H. Hendren. *Amer J Dis Child* 115(1):74-79, 1968.

6160 FUNCTION OF THE GALLBLADDER AFTER GASTRECTOMY. *(Rus.)* Ivlev, V. F. (Kursk Med. Inst., USSR). *Klin Khir (Kiev)* (8):13-16, 1967.

6161 SERUM BILE ACIDS IN HEPATOLOGY. V. CHOLESTATIC DISEASES. *(Fr.)* Rautureau, M. (Saint-Antoine Hosp., Paris, France), B. Chevrel and J. Caroli. *Rev Medicochir Mal Foie* 42(4-5):217-231, 1967.

6162 ADVERSE RESULTS OF SPHINCTEROTOMY. [CASE REPORT] *(Fr.)* Gautier-Benoit, C. (Surg. U. Hosp., Lille, France) and M. Florin. *Lille Med* 12(8):948-950, 1967.

6163 THE EFFECT OF THE PANCREATIC JUICE ON THE GALLBLADDER DURING ACUTE CHOLECYSTITIS. *(Rus.)* Kuzmenko, L. N. (Lvov Med. Inst., USSR) and V. S. Chepovskii. *Klin Khir (Kiev)* (8):11-13, 1967.

6164 CONTRAST MEDIUM PERSISTING FOR MORE THAN 9 MONTHS IN THE GALLBLADDER. *(Ger.)* Holstein, J. (Karlshorst Sanat., Berlin, Germany). *Fortschr Roentgen* 107(3):434-435, 1967.

6165 SPHINCTEROPLASTY. *(Sp.)* Greco, H. and E. J. Pollastri. *Bol Soc Cir Rosario* 34(8):369-372, 1967.

6166 MALIGNANT GALLBLADDER TUMORS. CLINICAL-STATISTIC INFORMATION ON 24 CASES. *(It.)* Tamborini, G. (Inst. Clin. Gen. Surg. Ther. Surg., Sacred Heart Catholic U., Italy), A. Butti, A. Conti and E. Alcini. *Chir Pat Sper* 15(4):666-678, 1967.

6167 COMPLICATIONS AND FOLLOW-UP IN CHOLECYSTECTOMY. *(Por.)* Sanchez, M. E. H. (Med. Fac., Lima, Peru). *An Paul Med Cir* 94(3):91-95, 1967.

6168 CARCINOID OF THE AMPULLA OF VATER. *(It.)* D'Alonzo, U. (S. Gerardo Tintori Hosp., Monza, Italy) and S. Sordo. *Chirurgia* 22(5):282-283, 1967.

6169 INTERCOSTAL BLOCKADE WITH LAC-43 (MARCAIN) AFTER CHOLECYSTECTOMY. COMPARATIVE DOUBLE-BLIND STUDY WITH CARBOCAINE AMMONIUM SULPHATE AND PLACEBO. *(Sw.)* Jörgensen, H. (Central Hosp., Kalmar, Sweden). *Nord Med* 78(41):1325-1327, 1967.

6170 CHOLELITHIASIS AND THE ONLY WAY TO AVOID THIS COMPLICATION. THE MINIMUM SYNDROME. *(It.)* Ivanissevich, O., C. I. Rivas and A. M. Livy. *Osped Ital Chir* 17(6):739-741, 1967.

6171 RENAL FUNCTION DISORDERS AFTER CHOLANGIOGRAPHY. *(Dut.)* Viersma, H. J. *Nederl T Geneesk* 111(44):1971-1972, 1967.

6172 EARLY DIABETIC METABOLISM DISORDERS AND BIOPSY DETERMINED LIVER FAT CONTENT IN CHOLELITHIASIS. *(Ger.)* Knick, B. (2nd Med. Clin. Polyclin., Mainz, Germany), G. J. Kremer, H. Grams, M. Nagel, G. Mappes and F. K. Koessling. *Verh Deutsch Ges Inn Med* 73(4):255-258, 1967.

6173 THE ROLE OF THE GALLBLADDER WALL IN FILTRATION IN BILIARY PERITONITIS. *(It.)* Tibaldeschi, C. (Inst. Semeiotic Surg., U. Pavia, Italy), E. Galli, G. Dozio and R. Dionigi. *Chir Ital* 19(6):1382-1391, 1967.

6174 HEPATIC-COMMON BILE DUCT OBSTRUCTION. *(It.)* Ciarpaglini, L. (Inst. Radiol., U. Rome, Italy) and D. Manfredi. *Nunt Radiol* 33(Suppl.):344-350, 1967.

6175 HISTORY OF BILIARY TRACT SURGERY. *(Por.)* Bastos, J. (Fac. Med. Porto, Portugal). *J Med (Porto)* 65(1318):1013-1033, 1968.

6176 SPONTANEOUS CHOLECYSTO-GASTRIC FISTULAS. *(Pol.)* Noszczyk, W. K. (2nd Surg. Clin., Acad. Med., Warsaw, Poland), I. Pronaszko-Rzepecka and J. Szymanowski. *Pol Tyg Lek* 23(26):986-989, 1968.

6177 ON THE PROBLEM OF SECRETORY FUNCTION OF THE STOMACH IN GALLSTONE DISEASE. *(Pol.)* Książkiewicz-Szapiro, M. D. (Gastrol. Clin., Acad. Med., Warsaw, Poland). *Pol Tyg Lek* 23(26):981-983, 1968.

6178 INTERMITTENT INTRAHEPATIC CHOLESTASIS OF UNKNOWN ETIOLOGY IN FIVE YOUNG MALES FROM THE FAROE ISLANDS. *(E.)* Tygstrup, N. (U. Hosp. Copenhagen, Denmark) and B. Jensen. *Acta Med Scand* 185(6):523-530, 1969.

6179 POTASSIUM, SODIUM, AND CHLORINE CONTENT IN THE BLOOD AND URINE OF PATIENTS WITH ACUTE CHOLECYSTITIS BEFORE AND AFTER SURGERY. *(Rus.)* Mamchich, V. I. (Kiev Inst. Postgrad. Med., USSR). *Klin Khir (Kiev)* (7):17-20, 1967.

6180 DIAGNOSIS, CLINICAL ASPECTS AND THERAPY IN CHOLESTEATOMA OF THE GALLBLADDER. *(Ger.)* Strick, W. O. *Ber Phys Med Ges Wurzburg* 74:1-3, 1967.

6181 THE NATURE OF THE FUNCTIONAL STATE OF THE NEURO-MUSCULAR APPARATUS DURING OBSTRUCTIVE JAUNDICE. *(Rus.)* Pityk, N. I. (Ivano Frankovsk Med. Inst., USSR) and Ia. V. Ganitkevich. *Pat Fiziol Eksp Ter* 12(1):81-83, 1968.

6182 ORIGIN OF BACTERIA IN BILEDUCT BILE. *(E.)* Balsano, F. (Inst. Gen. Clin. Med., U. Palermo, Italy), G. Pitucco and S. Mansueto. *Lancet* 1(7546): 819, 1968.

6183 SURGICAL PROBLEMS IN OBSTRUCTIVE JAUNDICE DUE TO BILIARY TRACT CANCER. *(Ger.)* Zittel, R. X. (Freiburg, Germany). Pp. 399-402 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

6184 BENIGN EXTRAHEPATIC OBSTRUCTIVE JAUNDICE DUE TO PRIMARY STENOTIC BILIARY TRACT FIBROSIS IN A YOUNG FEMALE PATIENT. *(Ger.)* Kern, E. (Lorrach, Germany). Pp. 396-398 in *Ikterus.* International Symposium 27-29 October 196 Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

6185 INFLUENCE OF CORTICO-STEROIDS ON THE REVERSAL OF CHANGES OF BILIARY OBSTRUCTION–AN EXPERIMENTAL STUDY. *(E.)* Prakash, A. (All-India Inst. Med. Sci., New Delhi) and S. Pinchai. *Indian J Surg* 30(4):328-335, 1968.

6186 GRANULAR CELL MYOBLASTOMA OF THE CYSTIC DUCT: REPORT OF A CASE AND BRIEF REVIEW OF THE LITERATURE. *(E.)* Patt, H. H. (Johns Hopkins U. Sch. Med., Baltimore, Md.) and N. P. Balacuit. *Sinai Hosp J* 14(2):118-124, 1968.

6187 BENIGN BILE DUCT STRICTURES: METHODS OF REPAIR. *(E.)* Stephens, F. O. (U. Sydney, Australia). *Med J Aust* 2(2):57-59, 1968.

6188 EVALUATION OF AN IMPROVED OPERATIVE TECHNIC IN COMMON DUCT SURGERY. *(E.)* Fogarty, T. J. (U. Oregon Med. Sch., Portland), W. W. Krippaehne, D. L. Dennis and W. S. Fletcher. *Amer J Surg* 116(2):177-183, 1968.

6189 COMPLETE TRANSECTION OF THE COMMON BILE DUCT, THE SOLE SEQUELA OF BLUNT ABDOMINAL TRAUMA. *(E.)* Dobbie, R. P. Jr. (Naval Hosp., Oakland, Calif.) and A. C. Stormo. *J Trauma* 8(1):9-18, 1968.

6190 CHOLESTEROSIS OF THE GALLBLADDER AND PIGMENTARY CALCULI. *(It.)* Scarabelli, L. (Gen. Surg. Clin., U. Pavia, Italy) and P. Colombo *Chirurgia* 22(3):119-129, 1967.

6191 BENIGN TUMORS OF THE GALLBLADDER. *(It.)* Butti, A. (Inst. Clin. Gen. Surg. Ther. Surg., Sacred Heart Catholic U., Italy), A. Conti and G. Tamborini. *Chir Pat Sper* 15(4):649-665, 1967.

6192 ENTEROGENOUS CYST OF THE AMPULLA OF VATER. [CASE REPORT] *(E.)* De Oya, J. C. (U. Hosp., Santiago de Compostela, Spain), J. L. Puente, A. Villaneuva and J. Potel. *Digestion* 2(4):201-208, 1969.

6193 TUMORS OF THE EXTRAHEPATIC BILIARY SYSTEM. *(E.)* Gray, G. F. Jr. and R. W. McDivitt. *Pathology Annual* 4:231-251, 1969.

6194 ANOMALIES OF THE GALLBLADDER. A REVIEW WITH REPORT OF FOUR CASES. *(E.)* Nelson, W. (Deaconess Hosp., Great Falls, Mont.). *Rocky Mountain Med J* 66(5):62-70, 1969.

6195 SURGICAL MANAGEMENT OF CONGENITAL CHOLEDOCHAL CYST. *(E.)* Lindenauer, S. M. (U. Michigan Med. Ctr., Ann Arbor) and J. M. Lavanway. *Surgery* 65(6):972-977, 1969.

6196 OBSTRUCTIVE JAUNDICE COMPLICATING PLEUROPERITONEAL HERNIA IN THE ADULT. [CASE REPORT] *(E.)* Adams, J. T. (U. Rochester Med. Ctr., N. Y.), D. G. McReynolds, H. B. Hudnut Jr. and D. I. C. Sun. *Amer Surg* 35(7):482-487, 1969.

6197 RETAINED COMMON DUCT STONES: A NEW NONOPERATIVE TECHNIQUE FOR TREATMENT. [CASE REPORT] *(E.)* Lamis, P. A. (Georgia Baptist Hosp., Atlanta), A. H. Letton and J. P. Wilson. *Surgery* 66(2):291-296, 1969.

6198 CONGENITAL STENOSIS OF THE COMMON DUCT AS A CAUSE OF ABDOMINAL PAIN AND EMESIS. [CASE REPORT] *(E.)* Grayer, S. P. (Ft. Dix, N. J.). *Surgery* 66(2):398-400, 1969.

6199 LAPAROSCOPIC DIFFERENTIAL DIAGNOSIS OF OBSTRUCTIVE JAUNDICE AND SPLEEN RADIOLOGY AT LAPAROSCOPY. *(Ger.)* Beck, K. (Freiburg, Germany). Pp. 335-343 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

6200 TECHNICAL CONSIDERATIONS OF LAPAROSCOPIC CHOLECYSTO-CHOLANGIOGRAPHY AND PERCUTANEOUS TRANSHEPATIC CHOLANGIOGRAPHY. *(Ger.)* Sickinger, K. (Göttingen, Germany). Pp. 378-380 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

6201 ICG-CLEARANCE IN OBSTRUCTIVE JAUNDICE. *(E.)* Longueville, J. (Louvain, Belgium). Pp. 425-426 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

6202 BILIRUBIN METABOLISM IN OBSTRUCTIVE JAUNDICE IN MAN. *(E.)* Fevery, J. (St. Rafael U. Clin., Louvain, Belgium). Pp. 53-55 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

6203 URINARY METABOLITES OF SULFADIMETHOXINE AND OF BILIRUBIN IN CRIGLER-NAJJAR SYNDROME. *(E.)* Jansen, F. H. (Louvain, Belgium). Pp. 282-283 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

6204 SIGNIFICANCE OF PERCUTANEOUS TRANSHEPATIC CHOLANGIOGRAPHY IN THE PREOPERATIVE DIAGNOSIS. *(Ger.)* Bayindir, S. and K. Schultis. Pp. 373-377 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

6205 DIRECT CHOLECYSTO-CHOLANGIOGRAPHY AND CHOLANGIOGRAPHY IN THE DIFFERENTIAL DIAGNOSIS OF JAUNDICE. *(Ger.)* Wannagat, L. (Bad Mergentheim, Germany). Pp. 365-372 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

6206 SCLEROSING CHOLANGITIS. *(Nor.)* Holter, O. *T Norsk Laegeforen* 88(8):696-697, 1968.

6207 BILIARY EMERGENCIES IN CHILDHOOD. *(Por.)* Da Silva Freire, E. C. (Getulio Vargas Hosp., Rio de Janeiro, Brazil) and Z. Delboni. *Folha Med* 57)6):829-856, 1968.

6208 REPEATED OPERATIONS ON THE BILE DUCTS. *(Pol.)* Mrozowski, D. (2nd Surg. Clin., Polish Acad. Med., Szczecin) and M. Parszewski. *Pol Przegl Chir* 40(3):205-208, 1968.

6209 REPEATED OPERATIONS ON THE BILIARY TRACT. *(Por.)* Bevilacqua, R. G. (Fac. Med., U. São Paulo, Brazil), A. de Cunha Marques and F. Schmidt Goffi. *Rev Hosp Clin Fac Med S Paulo* 23(4):203-208, 1968.

6210 PRIMARY CANCER OF THE GALLBLADDER. *(It.)* Mazzarella-Farao, O. (Santo Spirito Hosp., Rome, Italy) and A. Dalmasso. *Rass Clinicosci* 44(5):147-155, 1968.

6211 ISOLATED TUBERCULOSIS OF THE GALLBLADDER. *(Sp.)* Bottiglieri, J. (J. B. Iturraspe de San Francisco Hosp., Cordoba, Argentina) and A. Rodriguez Alvarez. *Rev Argent Cir* 14(3/4):102-103, 1968.

6212 THE PATHOGENESIS OF CHRONIC CHOLECYSTITIS. *(Rus.)* Levina, S. I. (Munic. Clin. Hosp. No. 64, Moscow, USSR). *Arkh Pat* 30(1):11-16, 1968.

6213 POST-CHOLECYSTECTOMY PROBLEMS. *(E.)* Franklin, R. H. (Postgrad. Med. Sch., London, England). *J Roy Nav Med Serv* 54(3):200-206, 1968.

6214 THE MANAGEMENT OF UNCOMPLICATED GALL-STONES. *(E.)* Avery-Jones, F. (St. Mark's Hosp., London, England). *J Roy Nav Med Serv* 54(3):183-189, 1968.

6215 **THE ADMINISTRATION OF MINERAL WATER FROM THEODOSIA IN THE COMPLEX THERAPY OF CHILDREN SUFFERING FROM INFLAMMATORY DISORDERS OF THE GALLBLADDER AND BILE DUCTS.** *(Rus.)* Pleshtis, S. A. (Crimean Med. Inst., Simferopol, USSR). *Pediatriia* 47(1):77-80, 1968.

6216 **SPONTANEOUS DISSOLUTION OF GALL STONES.** *(Ger.)* Wolpers, C. (Kronsforder Alee 3b, Lübeck, Germany). *Deutsch Med Wschr* 93(52):2525-2532, 1968.

6217 **BILIO-DUODENAL INTERPOSITION OF A JEJUNAL SEGMENT.** *(Por.)* Telles, F. C. S. (Fac. Med. Sci., Casa Misericória, São Paulo, Brazil). *Arq Gastroent* 5(4):165-168, 1968.

6218 **SPONTANEOUS EXTERNAL BILIARY FISTULA. (REPORT OF 2 CASES).** *(Turk.)* Sasmaz, O. (Istanbul U., Turkey) and S. Devrim. *Tip Fak Mec* 31(3):490-502, 1968.

6219 **PRIMARY CLOSURE OF THE COMMON BILE DUCT. [CASE REPORT]** *(Turk.)* Ramazanoglu, M. (Istanbul U., Turkey) and H. Insel. *Tip Fak Mec* 31(3):469-481, 1968.

6220 **SPONTANEOUS EXTERNAL GALLBLADDER FISTULAS.** *(Hun.)* Kantor, E. (Munic. Hosp., Bernau, Germany) and J. Folk. *Magy Sebesz* 21(6):362-364, 1968.

6221 **DOUBLE GALLBLADDER. [CASE REPORT]** *(Dut.)* Vos, L. J. M. (St. Geertruiden Hosp., Deventer, Netherlands). *Nederl T Geneesk* 112(12):552-555, 1968.

6222 **THE EFFECT OF INSULIN HYPOGLYCEMIA ON BILE FLOW AND COMPOSITION.** *(E.)* Liedberg, G. (Dept. Surg., U. Lund, Sweden). *Acta Chir Scand* 135(4):325-327, 1969.

6223 **THE FREQUENCY OF ICTERUS AND CHOLESTASIS IN CHRONIC INFLAMMATORY LIVER DISEASES.** *(Ger.)* Gros, H. (Munic. Hosp., Saarbrücke Germany). Pp. 177-178 in *Ikterus.* International Symposium 27-29 October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

See also: 5120,5124,5137,5280,5293,5298,5316,5324,5415,5433,5441,5444,5464,5466,5608

## GENERAL

6224 **A WATERBORNE EPIDEMIC OF GASTROENTERITIS WITH SECONDARY PERSON-TO-PERSON SPREAD.** *(E.)* Lobel, H. O. (Natl. Communicable Dis. Ctr., Atlanta, Ga.), L. Bisno, M. Goldfield and E. Prier. *Amer J Epidem* 89(4):384-392, 1969.

An epidemic of gastroenteritis occurred among persons who had visited a park between June 5 and June 8, 1966, and 454 cases with either vomiting or diarrhea were identified although several thousand illnesses probably occurred. The average incubation period was 29 hr with an attack rate of 69%. Epidemiologic and laboratory evidence implicated the water supply of the park as the source of the outbreak. Secondary cases of gastroenteritis occurred in household contacts not exposed to the park water supply; the average incubation period of the secondary cases was 63 hr and the secondary attack rate was 44%. The high secondary attack rate among household contacts suggested the presence of an infectious agent. No recognized bacterial pathogens or viral organisms could consistently be isolated from the stools of 171 patients or from the drinking water. The epidemic was not followed by the occurrence of hepatitis.

6225 **DEPOSITION OF AMYLOID IN THE GASTROINTESTINAL TRACT.** *(E.)* Gilat, T. (Tel-Aviv U. Med. Sch., Israel), M. Revach and E. Sohar. *Gut* 10(2):98-104, 1969.

The histological distribution of amyloid in the various organs of the gastrointestinal tract was studied in 68 cases of systemic amyloidosis involving the bowel (3 familial Mediterranean fever, 21 acquired secondary amyloidosis, 14 primary amyloidosis and 2 multiple myeloma). Two patterns of amyloid deposition were found. In all cases amyloid was present in blood vessels, mainly in the submucosa. In the secondary amyloidoses and amyloidosis associated with familial Mediterranean fever, amyloid was deposited in the inner coat of small blood vessels, while parenchymal deposition of amyloid was predominantly in the mucosa. In primary amyloidosis and amyloidosis associated with multiple myeloma, amyloid was found in the outer coat of small and medium sized blood vessels while parenchymal deposition was predominantly in the muscle layers. These 2 patterns correspond to the recent classification of amyloidosis into perireticulin and pericollagen types resp. Most reported cases seem to conform to these 2 patterns.

6226 **INTESTINAL TRANSMURAL ELECTRIC POTENTIAL AND ITS RESPONSE TO GLUCOSE IN ACUTE AND CONVALESCENT CHOLERA.** *(E.)* Sachar, D. B. (Pakistan-Southeast Asia Treaty Organization Cholera Res. Lab., Dacca, Pakistan), J. O. Taylor, J. R Saha and R. A. Phillips. *Gastroenterology* 56(3):512-521, 196

Six healthy volunteers who had fully recovered from mild attacks of noncholera gastroenteritis 2-10 weeks before and 7 acute cholera patients restored to normal hydration but still with "rice-water stools" of 100-800 cc/hr were studied. A polyvinyl tube was swallowed by the subject and passed through the entire gastrointestinal tract from mouth to anus. The end passing out the anus served as the intraluminal electrode which is completely filled with saline and attached to a saline reservoir. A schematic drawing shows the technique in detail. Preliminary studies with this new technique of measuring transmural intestinal potential included observations in control subjects on the effects of variations in rate and duration of infusion, character and concentration of infused sugars, and location of measuring sites. Baseline potentials were measured in stomach, duodenum, jejunum, ileum, and colon of all 6 controls. Similar studies were made in the cholera patients. A marked enhancement of luminal activity was observed in the presence of glucose and galactose, but not in the presence of sugars which are not actively transported. Neither baseline nor glucose-evoked potentials were affected in acute cholera. Therefore the diarrhea in cholera must be produced by a mechanism which does not substantially alter the normal intestinal transmural electrical potential and the intestinal capacity for sugar-dependent sodium transport presumably remains intact.

6227 **DELAYED HYPERSENSITIVITY CONTACT REACTIONS IN THE GUT.** *(E.)* Bicks R. O. (U. Tennessee Coll. Med., Memphis) and E. W. Rosenberg. *Southern Med J* 62(7):830-833, 1969.

Previous skin sensitization with 2,4-dinitrochlorobenzene (DNCB) resulted in mucosal ulceration with destruction of the mucosa and round cell infiltration in guinea and miniature pig stomach when DNCB was placed in direct contact with the mucosa. A similar but less intense morphologic change was noted without previous sensitization. Similar experimental groups were exposed to DNCB in the small intestine where the cellular infiltration of the villi was less marked in those not skin sensitized. The reduction in xylose absorption was also more marked in the sensitized group. Skin sensitized animals exposed to DNCB in the colon were exacerbated by neostigimine treatment.

6228 **CLINICAL EXPERIENCE WITH THE THERAPEUTIC ACTIVITY OF A NEW SYNTHETIC CHOLERETIC ( A QUINAZOLINE DERIVATIVE ).** *(It.)* Montagnani, M. (Inst. Gen. Clin. Med. U. Siena, Italy), A. Guidugli, P. F. Bayeli and A. Antonelli. *Fegato* 15(1):23-39, 1969.

Favorable objective and subjective clinical results were obtained in 84% of 13 subjects (7 male and 6 female, 39-79 yr of age) with various hepatobiliary diseases who were treated i.v. or p.o. with 2.8-10 g of a new derivative of quinazoline (REC 14/0127). The best results occurred in cases of parenchymal liver diseases and in lithiasis of the gallbladder with or without inflammation of the biliary tract. Treatment led to normalization of liver function tests and to a reduction in cholesterolemia, probably due to increased biliary excretion of cholesterol. Toxicity to the drug was low, even after prolonged therapy (6-25 days). A further study of 17 healthy subjects demonstrated a marked choleretic action of REC 14/0127, regardless of route of administration, with increased bile flow (29% to 276% compared to basal values) together with a considerable increase in the concentration of cholesterol and bile pigments in the bile. The effects of the new drug were consistently greater than those of sodium dehydrocholate.

### 6229 EFFECTS OF INFUSION RATE AND OSMOLARITY ON VOLUMOGENIC DIARRHEA.

*(E.)* Shehadeh Z. (U. Oklahoma, Oklahoma City) R. N. Grantham, G. A. Brecher and E. D. Jacobson. *Gastroenterology* 57(1):24-29, 1969.

The effects of infusion rate and osmolarity on the onset of diarrhea induced by infusing fluid into the upper gut (volumogenic diarrhea) were studied in mongrel dogs (6-23 kg). With isotonic saline the diarrhea-inducing volume was largest at low infusion rates. This volume declined sharply with increasing infusion rates up to 30 ml/min, and remained unchanged at 61.5 ± 1.7 ml/kg body weight, with rates between 30 and 900 ml/min. The volume of hypertonic sorbitol which induced diarrhea was not significantly different from that of saline at infusion rates exceeding 30 ml/min. At infusion rates below 30 ml/min, a smaller volume of sorbitol than of saline was required to induce diarrhea. When saline was infused at rates below 30 ml/min, absorption of more than 20% of the infused volume occurred and increased the diarrhea-induced volume. With sorbitol solution at low infusion rates, enterosorption of fluid amounting to as much as 41% of the infused volume kept the diarrhea-inducing volume fairly constant at 62 ± 2.7 ml/kg body weight. With increasing body weight, the total volume necessary to produce diarrhea also increased.

### 6230 SALIVARY GLAND TUMOURS IN MALAYA.

*(E.)* Loke, Y. W. (Dept. Pathol., U. Malaya, Kuala Lumpur, Malaysia). *Brit J Cancer* 21(4):665-674, 1967.

Data on 670 cases of salivary gland tumors, in Malaya, were collected for the period 1948-1965. In 1965, in Selangor, the incidence rate was 1.3/100,000/yr for males, 0.8 for females. The percentage of salivary gland tumors relative to total number of tumors was 4.1% among Malays, 2.3% among, Chinese, and 1.7% among Indians. Of the parotid tumors, 71% were benign, 29% malignant; submandibular – 79% benign, 21% malignant; palate – 54% benign, 46% malignant; and minor – 50% benign, 50% malignant. Of the total number, 58.7% were parotid gland tumors, 15.1% submandibular, 5.5% palate, and 6.3% minor. This frequency of palate gland tumor in Malaya is low compared with Uganda (19.4%) and South Africa (12.9%). The benign mixed histological type occurred with highest frequency (56%). There were 43 malignant mixed tumors and 375 benign mixed tumors in the series. Although many of the malignant mixed tumors developed from a long standing benign mixed tumor, some of them may have been malignant from the outset. Adenoid cystic caricinoma constituted 4.3%, adenocarcinoma – 9.8%, papillary cystadenoma lymphomatosum – 6.4%, mucoepidermoid carcinoma – 6.0%, squamous carcinoma – 3.1%, and hemangioma – 3.4%; of all the salivary gland tumors. Hemangiomas are the most common type of salivary gland tumor found in children, and nearly all of them occur in infancy and early childhood.

### 6231 PORPHYRIN PRECURSORS IN SULFANILAMIDOPYRIMIDIN TREATMENT. *(E.)*

Sandberg, C. G. (Ulleråker Hosp., U. Uppsala, Sweden) and L. Wetterberg. *Scand J Clin Lab Invest* 20(2):176-178, 1967.

Apparently healthy medical students (20 males, 10 females; aged 21-30) were treated with 0.5 g per day of 5-methoxy-2-sulfanilamidopyrimidin (p.o.) for 5 days. The 24-hr urinary excretion of porphyrin precursors delta-aminolaevulic acid (ALA) and porphobilinogen (PBG) was determined before and after treatment. The ALA excretion was increased in 27 and PBG was decreased in 28. The ratio between the mean of the urinary ALA and PBG excretion was 1.1 before, and 3.6 after sulfa treatment, indicating a shift from PBG to ALA, but the individual differences varied so they cannot easily be explained on the basis of a single chemical mechanism of the type changed redox reactions caused by the sulfa drug. Sulfonamide drugs, as well as lead, are capable of producing increased urinary excretion of coproporphyrin even in individuals lacking the gene for porphyria.

### 6232 SULPHATE SPACE IN THE HUMAN ORGANISM AFTER INTRAVENOUS ADMINISTRATION OF RADIOSULPHATE ($Na_2{}^{35}SO_4$). *(E.)*

Kragelund, E. (Gentofte Hosp., Copenhagen, Denmark) and M. O. Dyrbye. *Scand J Clin Lab Invest* 19(4):319-324, 1967.

Tracer substance (sulfate labeled with $^{35}S$) was injected i.v. in 25 (11 male, 14 female; ages 20-61) normal persons and 14 patients with various diseases, to determine the extracellular volume and the most correct equilibration period. Several processes appear to run at different rates within the first 45-60 min. In normal subjects the average $^{35}S$ urinary excretion (3 hr) in the women was 35%, and in the men 38%, of the injected dose. In normals, the equilibration period was 60 to 90 min. In patients with ascites an equilibration was seldom reached even 180 min after injection. Determination of extracellular volume by this method in normal persons gives acceptable and reliable results. The excretion in gastric juice and bile during the equilbration period did not influence the results significantly, but it was necessary to make a correction for the urinary loss. The sulfate ion is not well-suited for this determination in patients suffering from various diseases affecting their extracellular fluid volume. The rapid excretion in the urine very soon makes the plasma concentration so low that it is impossible to obtain sufficiently high counts, especially if the equilibration time exceeds 180 min. Some of the sulfate also slowly penetrates the cells and is incorporated in the mucopolysaccharides.

### 6233 ENCEPHALITIC MANIFESTATIONS OF TYPHOID FEVER (17 OBSERVATIONS). *(Fr.)*

Lafaix, C. (Fac. M., Dakar, Senegal), M. Rey, I. Diop Mar and E. Alihonou. *Bull Soc Med Afr Noire Lang Franc* 13(3):517-524, 1968.

Seventeen cases (9 male and 8 female) of encephalitic disorders due to typhoid fever (Salmonella typhi), occurring in different phases of the disease were observed among 163 cases of typhoid fever hospitalized in 3 yr (1965-1967). The neuropsychiatric symptoms of the disease were: disturbances of consciousness (16); psychic disturbances (15), (ranging from delirium to mental obtusion) abnormal movements (8); ataxia with positive Romberg (5), and clinical symptoms of meningitis (5). The EEG of 11 was altered and in 8 of these many theta and delta waves were present. The average duration of the encephalopathy was 18 days. In all the cases the course was favorable. In 3 cases there were cardiovascular and in 2 abdominal complications. The patients were treated with chloramphenicol p.o. or i.v. and in 5 the encephalitic symptoms seemed to grow worse after treatment, perhaps because of excessive doses. In 7 corticoids were also given without modifying the clinical course.

### 6234 THE VIBRIOS ASSOCIATED WITH DIARRHEAL CASES IN SEOUL AND THEIR DISTRIBUTION.

*(E.)* Kee, R. S. (Coll. Med., Seoul Natl. U., Korea), Y. H. Ryu and S. H. Kim. *J Korean Med Ass* 10(8):603-606, 1967.

Since the cholera of the El Tor type has become prevalent throughout the Far East, there has been a search for so-called non-agglutinable vibrios (NAG) in the feces or vomit of diarrheal patients. In 1964, 1 month before the outbreak of cholera in Inchon, 5 cases (3 males, 2 females; ages 20-53 yr) of diarrhea associated with NAG occurred in Seoul, and 1 of these died of cholera-like diarrhea. Eleven strains of NAG which were agglutinated with the anti-sera to pathogenic NAG, were found among 138 strains of NAG isolated from feces of apparently healthy individuals, samples of sea water, sewage, marine products and other sources in Seoul, Pusan and Inchon. Immune sera were prepared using the 5 strains of NAG of diarrheal origin and several strains of natural origin, and tentative classification of the 138 isolated strains was made by agglutination test, resulting in the classification of only 52. The antigenic structure of NAG appears to be complicated and further study is indicated. Pathogenic NAG is apparently present in the environment. The difference between NAG and El Tor types of *Vibrio cholerae* seems to be the apparent presence of O-antigens only in cholerigenic types. Such antigens may be on the course of ecological development or evolution.

### 6235 MASSIVE GASTROINTESTINAL HEMORRHAGE.

*(E.)* Leffall, L. D., Jr. (Howard U. Coll. Med., Washington, D. C.), J. E. White and B. Syphax. *Med Ann D. C.* 36(11):657-661, 1967.

To determine factors affecting morbidity and mortality in patients with massive bleeding from the gastrointestinal tract, all such cases (17 male, 5 female; ages 25-87 yr) seen between 1962 and 1966, were analyzed. The most common cause of massive bleeding was duodenal ulcer (8). Sigmoid diverticulosis (3) and typhoid fever (1) were the only causes of massive hemorrhage from the lower gastrointestinal tract. Eight patients required emergency surgery, including 3 over 60 yr old with gastric ulcers. Half of these 8 survived. Of the 14 patients not having emergency surgery, 11 survived. The 3 indications for emergency surgery are uncontrolled rapid bleeding, continued slow bleeding, and recurrent bleeding. Evaluation of each patient is essential. Emergency surgery should be performed before the patient's condition is grave. Excision is favored in both gastric and duodenal ulcers. Surgery is indicated for patients with localized diverticulosis and previous episodes of diverticulitis. In very poor-risk patients with bleeding duodenal ulcers vagotomy, pyloroplasty, and suture ligation of the ulcer appear to be the procedure of choice. Blind gastrectomy is to be avoided. Careful search for esophagogastric lacerations (Mallory-Weiss syndrome) and lesions in the proximal stomach is urged. Aggressive transfusion for early restoration of blood volume and the team approach for optimum care are important for best results.

### 6236 PRIMARY MALIGNANT LYMPHOMAS OF THE GASTRO-INTESTINAL TRACT. A STUDY OF SEVEN CASES.

*(E.)* Reddy, D. B. (Guntur Med. Coll., India) K. U. Rao, N. U. Rao, L. Suryanarayana and N. Gopalakrishna. *Indian J Surg* 30(6):487-494, 1968.

Seven cases (5 male 2 female with an average age of 28 yr) of primary malignant lymphoma of the gastro-intestinal tract were observed during an 11 yr period. There were 6 lymphosarcomas and 1 case of Hodgkin's disease. Lesions were found in the ileum (1), stomach (2) jejunum (2) and ileocecal area (1 Hodgkin's, 1 lymphosarcoma). Abdominal pain was the presenting complaint in 6 and a lump in 1. Gross lesions included infiltrating plaque, diffuse submucosal invasion or a polypoidal mass. Perforation occurred in 1 of the 7 cases (14.3%) and perforation may occasionally be the first evidence of the disease. Prognosis is variable, good in lymphoma of the stomach and worse in perforated cases.

### 6237 LESIONS OF THE GASTROINTESTINAL MUCOSA IN EXPERIMENTAL LEAD POISONING.

*(Rus.)* Nilova, N. A. (Inst. Normal Pathol. Physiol., Acad. Med. Sci. USSR, Moscow) and A. A Mambeieva. *Biull Eksp Biol Med* 65(6):104-106, 1968.

A histological study of the stomach and proximal and distal parts of the small and large intestines was made on 10 dogs, 9 of which had been given 1 ml/kg body weight/day of a 1, 3, or 5% solution of $Pb(CH_3COO)_2 \cdot 3H_2O$ p.o. Dogs given the 1% solution developed chronic lead intoxication and lived for 5-9 months while those given 3 or 5% solutions developed acute or subacute intoxication and died after 1.5-3 months. All dogs had necrotic changes in the covering epithelium and superficial parts of the mucosa which, in more severe cases, also involved the glands and their stroma and, in a few cases, the submucosa. Desquamation was seen in necrotic areas of the stomach and intestine. Erosion and ulcerative defects appeared. Lesions were most severe in the pylorus and in the large intestine where the structure of the crypts was changed and the intestinal wall became thinner. Necrotic changes were rarer and more superficial and localized in chronic intoxication. Active secretion occurred in non-necrotic cells throughout the gastrointestinal mucosa. In some cases the lumens of the mucosal glands became dilated into cystic cavities. Mucosal regeneration occurred in dogs with chronic intoxication, but even 79 days after the last dose of lead, glandular structures and cells of the gastrointestinal mucosa were still abnormal.

### 6238 PATHOGENESIS OF THE TYPHOID AND PARATYPHOID CARRIER STATE.

*(Rus.)* Postovit, V. A. (Kiev Sci. Res. Inst. Infect. Dis., Minist. Publ. Hlth., Ukrainian SSR), Ie. G. Fedulova, D. A. Bugera, I. S. Surminskaia and A. S. Paschenko. *Zh Mikrobiol* 45(6):60-63, 1968.

The hepatobiliary system and some immunological parameters were studied in 30 carriers of *Salmonella typhosa*, 3 of *S. paratyphi* A, and 2 of *S. paratyphi* B. Diagnosis of the carrier state was made by isolation of bacteria from bile and stools in 27 cases and from stools in 8. No bacteria were isolated from the urine of any of these subjects (32 women and 3 men, aged 21-80 yr) who had been carriers for 6 months to 54 yr. Of these 35 carriers, 12 had been hospitalized for diseases of the liver or biliary tract and 29 had hepatomegaly. Pathological changes in the duodenal contents were found in 26 of the 29 examined. Different i.v. and p.o. cholecystographic techniques showed abnormalities in 30 of the 31 examined. These abnormalities included hepatocholecystitis, cholecystitis, cholelithiasis, angiocholitis, and functional disturbances in gallbladder motility. A considerable decrease in bile acids, an increase in cholesterol, and a marked decrease of the cholate/cholesterol ratio was found in bile from the gallbladder and hepatic duct in most of those examined. The cholate/cholesterol ratio was very low in carriers with cholelithiasis. Serum complement activity was quite low in 26 of the 35 and was within normal limits in only 4 cases. Phagocytic activity of the white-blood cells was reduced in 17 of 31 chronic carriers. The Vi hemagglutination test was positive in 26 of 29 cases with titers ranging from 1:160-1:2560. Although the agglutination test with OH diagnostic reagent (?) was positive in all 35 cases, the mean titer was lower among these carriers than among patients with acute typhoid fever. This is attributed to suppression of immunological function among chronic carriers of *S. typhosa* and *S. paratyphi.*

### 6239 THE GROWTH OF YOUNG CHILDREN WITH KWASHIORKOR AFTER LEAVING THE HOSPITAL.

*(Fr.)* Omanga, M. and P. Satgé. *Bull Soc Med Afr Noire Lang Franc* 13(3):648-661, 1968.

The effects of severe kwashiorkor, associated with marasmus, on the growth of young children was studied. Among 28 cases, group I consisted of 13, 2-4 yr old, admitted to the hospital an average of 15 months previously; group II consisted of 5 between 4-5 yr old, admitted 27 months before; and group III consisted of 10 between 5-6 yr old, admitted 3 yr before. Growth retardation at the time of hospitalization and at examination was, resp.: in group I, 11% and 7%; in group II, 14% and 10%; in group III, 12% and 5%. A normal bone age was found in 10 of group I, 3 of group II, and 5 of group III. The albuminemia level was always low. The size of the muscle of the arm was normal in 10 of the 28 cases; in the others it was 90% of normal. The skull was small in 17 children. Kwashiorkor may not be solely responsible for these, as socio-economical conditions, and the child's diet since his release from the hospital are difficult to determine precisely.

### 6240 SOME CLINICAL FEATURES OF THE COURSE OF THE COURSE OF INTESTINAL INFECTIONS CAUSED BY ECHO AND COXSACKIE PICORNAVIRUSES.

*(Rus.)* Makhmudov, O. S. (Tashkent Med. Inst., USSR), A. V. Foliiants, K. B. Bakhadyrov, M. A. Mirzamukhamedov, and V. G. Balabonkin. *Med Zh Uzbek* (11):7-12, 1968.

Of 670 patients (158 adults and 512 children) with intestinal dysfunction, 24.35 ± 2.55% were shown to have enterovirus infections. These infections occurred almost twice as often in children as in adults and in the majority the viruses were identified as picornaviruses belonging to the ECHO group. In both adults and children these diseases had a short prodromal period, were generally benign, and were occasionally complicated by superimposed bacterial infections. Gastrointestinal symptoms usually developed 2-3 days after the onset of symptoms and consisted of nausea and occasional vomiting, borborygmus, tenesmus, and diarrhea. Latent forms were present in 40.23 ± 1.4% and were almost always found in children. In children diarrhea sometimes recurred during recovery; this hardly ever occurred among adults. Complications, seen chiefly in adults, included suppurative and inflammatory diseases of the respiratory and urinary tracts and diseases of the nervous system which were long term and refractory to therapy.

### 6241 CHEMOSTERILIZATION OF *SCHISTOSOMA MANSONI.*

*(E.)* Jackson, H. (Unit of Reproductive Physiol., U. Manchester, England), P. Davis, and M. Buck. *Nature* 218(5145):977, 1968.

Two simple unrelated compounds ethylenedimethanesulfonate (EDS) and hexamethylphosphoramide (HMPA) were tested for their ability to inhibit the reproductive capacity of *S. mansoni* within the mouse. Both agents were administered daily by gavage to female mice. Treatment began 1 week after exposure to infection with about 100 cercariae. Treatment with EDS continued for 5 weeks at a level of 200 mg/kg and with HMPA for 7 weeks at 250 mg/kg. Biweekly tests for miracidia begun 8 weeks after infection were completely negative in both series and remained so for 2 months. Parallel controls yielded consistent evidence of infection: counts were as high as 200 miracidia/4 mice even in the later weeks of the experiments. After death, schistosomes were present in mice of both treated and control groups in comparable numbers. The sterile parasites did not differ notably from controls except that the gonads were small – particularly in the female, in whom the vitelline glands appeared atrophic. A 2-week course of EDS treatment with (200 mg/kg/day p.o. or 100 mg/kg i.p.) begun 2 weeks after infection with cercariae, eliminated miracidia within 2 weeks although recovery occurred later. HMPA (250 mg/kg) was ineffective in similar experimental conditions. Sexual activity of the sterile males was not affected.

### 6242 AN INFECTIOUS DISEASE, UNKNOWN UP TO NOW, MAY BE IMPORTED BY APES ("APES' DISEASE" OF MARBURG).

*(Fr.)* Martini, G. A. (Med. Clin., U. Marburg, Germany), H. G. Knauff, H. A. Schmidt, G. Mayer and G. Baltzer. *Rev Medicochir Mal Foie* 43(4):165-182, 1968.

Case reports are presented of 23 patients affected by an infectious disease. All patients worked in an institute specializing in the preparation of vaccines and serum. All patients had been in direct contact with the blood, the organs or the cellular cultures of apes *Cercopithecus aethiopicus* or with the blood of infected patients. Four employees who fed the apes were not infected. The incubation period of the disease was 5-7 days. The duration of the disease, without complications, was 15-18 days. The spreading was abrupt, with malaise (23 cases), prostration (17), high fever with relative bradycardia (23); between the 3rd and 14th days, vomitus (21), diarrhea (19), hematemesis (17) and desquamation of the skin (23) were observed. Diagnostic signs were: increase of SGOT and SGPT, leukopenia with atypical lymphocytes and plasmocytes in the peripheral blood, thrombocytopenia and hypoproteinemia. Five patients died and the others had a very long convalescence, with persistent weakness.

6243 **EPIDEMIOLOGICAL EVALUATION OF INFECTIONS DUE TO *SALMONELLA ENTERITIDIS* IN WROCLAW IN 1964-1965.** *(Pol.)* Oleś, A. (Sanit.-Epidemiol. Sta., Wroclaw, Poland), W. Kocielska, M. Marchelska and J. Tota. *Pol Tyg Lek* 23(20):746-749, 1968.

6244 **ULCEROGENIC TUMORS OF THE PANCREAS (CLINICAL PICTURE, PATHOGENESIS AND TREATMENT OF THE ZOLLINGER-ELLISON SYNDROME).** *(Rus.)* Geller, L. I. (Khabarovsk Med. Inst., USSR) *Klin Med (Moskva)* 46(3):143-148, 1968.

6245 **THE ACT OF VOMITING IN MAN. [CASE REPORT]** *(E.)* Lumsden, K. (Radcliff Infirm., Oxford, England) and W. S. Holden. *Gut* 10(3):173-179, 1969.

6246 **THE PLACE OF ELECTROSURGERY IN ABDOMINAL OPERATIONS.** *(E.)* Conolly, W. B. (San Francisco Gen. Hosp., California), T. K. Hunt and J. E. Dunphy. *Amer J Surg* 118(3):422-426, 1969.

6247 ***CLOSTRIDIUM SEPTICUM* INFECTIONS AND MALIGNANCY.** *(E.)* Alpern, R. (Publ. Hlth. Svc., Atlanta, Ga.) and V. R. Dowell Jr. *JAMA* 209(3):385-388, 1969.

6248 **THE GASTROINTESTINAL SUMP TUBE.** *(E.)* Dennis, C. (State U. New York Downstate Med. Ctr., Brooklyn). *Surgery* 66(2):309-312, 1969.

6249 **CENTRIOLES OF A HUMAN CANCER: INTERCELLULAR ORDER AND INTRACELLULAR DISORDER.** *(E.)* Schafer, P. W. (VA Hosp., Washington, D.C.). *Science* 164(3885):1300-1303, 1969.

6250 **RADIOLOGY. PART I.** *(Rev.)(E.)* Wolf, B. S. (Mount Sinai Hosp., New York, N. Y.). *Gastroenterology* 57(3):324-338, 1969.

6251 **BENIGN CHOLECYSTOGASTRODUODENOCOLIC FISTULA. [CASE REPORT]** *(E.)* Shartsis, J. M. (Henry Ford Hosp., Detroit, Mich.) and J. T. Dinan Jr. *Amer J Dig Dis* 14(6):424-429, 1969.

6252 **THE OPERATIVE MANAGEMENT OF IDIOPATHIC MESENTERIC VENOUS THROMBOSIS WITH INTESTINAL INFARCTION [CASE REPORT]** *(E.)* Trinkle, J. K. (U. Kentucky Med. Ctr., Lexington), B. F. Rush, M. A. Fullmer, L. R. Bryant and J. Rams. *Amer Surg* 35(5):338-341, 1969.

6253 **FAMILIAL POLYPOSIS OF THE ENTIRE GASTROINTESTINAL TRACT. [CASE REPORT]** *(E.)* Yonemoto, R. H. (City Hope Med. Ctr., Duarte, Calif.), J. B. Slayback, R. L. Byron and R. B. Rosen. *Arch Surg (Chicago)* 99(4):427-434, 1969.

6254 **CONTROLLED CLINICAL STUDIES OF ORALLY ADMINISTERED ANTIEMETIC DRUGS.** *(E.)* Moertel, C. G. (Mayo Clin., Rochester, Minn.) and R. J. Reitemeier. *Gastroenterology* 57(3):262-268, 1969.

6255 **DIABETIC DIARRHEA. A CLINICAL AND PATHOPHYSIOLOGICAL STUDY.** *(E.)* Whalen, G. E. (Marquette Sch. Med., Milwaukee, Wis.), K. H. Soergel and J. E. Geenen. *Gastroenterology* 56(6):1021-1032, 1969.

6256 **WHAT IS DIETARY FAT?** *(E.)* Scheig, R. (Yale U. Sch. Med., New Haven, Conn.). *Amer J Clin Nutr* 22(5):651-653, 1969.

6257 **REVIEW OF 89 PERFORATING INJURIES OF THE ABDOMEN.** *(Ger.)* Staudacher, M. (2nd Surg. U. Clin., Vienna, Austria), P. Galle and W. Lorbek. *Zbl Chir* 94(30):997-1003, 1969.

6258 **INFECTION BY YERSINIA ENTEROCOLITICA IN A PATIENT WITH CHARACTERISTIC INFLAMMATION OF THE ILEO-CECAL TRACT. [CASE REPORT]** *(Dut.)* de Wulf, M. A. (Dijkzigt Acad. Hosp., Rotterdam, Netherlands), H. Esselveld and C. Goudzwaard. *Nederl T Geneesk* 113(15):665-667, 1969.

6259 **DIGESTIVE FUNCTION STUDY IN YOUNG OBESE PATIENTS.** *(Fr.)* Ruedi, B. (Nestlé Hosp., Lausanne, Switzerland), G. A. Borel, M. Graziano, J. Frei and P. Magnenat. *Schweiz Med Wschr* 99(21):774-776, 1969.

6260 **NUMEROUS INCIDENCES OF INFECTIOUS INTESTINAL DISEASES AFTER INGESTION OF CREAM-CONTAINING BAKERY GOODS. REPORT OF 2 SALMONELLA CASES IN THE DISTRICT OF HALLE.** *(Ger.)* Bender, U. (Inst. Hygiene, Halle, Germany), M. K. Achtzehn and E. Plage. *Deutsch Gesundh* 24(25):1178-1181, 1969.

6261 **INVESTIGATIONS OF AIR ABSORPTION RATE BY THE POSTOPERATIVE PNEUMOPERITONEUM IN CHILDREN. [CASE REPORT]** *(Ger.)* Waag, K. L. (Surg. U. Clin., Heidelberg, Germany), W. C. Hecker, B. Schüler and D. Beduhn. *Z Kinderchir* 7(2):209-214, 1969.

6262 **SYMPTOMATIC OCCULT UMBILICAL HERNIA.** *(E.)* Morton, C. B. (U. Virginia Sch. Med., Charlottesville, Va.). *Ann Surg* 169(5):774-776, 1969.

6263 **SILVER AND INTESTINAL FLORA. ROLES IN BACTERIAL COLONIZATION OF BURN WOUNDS.** *(E.)* Gravens, D. L. (Washington U. Sch. Med., St. Louis, Mo.) H. W. Margraf, C. K. Gravens, J. E. Thomerson and H. R. Butcher Jr. *Arch Surg (Chicago)* 99(4):454-458, 1969.

6264 **THE INCIDENCE AND MORBIDITY OF ACCIDENTAL INJURY TO THE SPLEEN OCCURRING DURING ABDOMINAL SURGERY.** *(E.)* Devlin, H. B. (St. Thomas's Hosp., London, England), D. S. Evans and J. S. Birkhead. *Brit J Surg* 56(6):446-448, 1969.

6265 **ONE LAYER END-ON INTESTINAL ANASTOMOSES USING FINE MONOFILAMENT STEEL SUTURES.** *(E.)* Cowley, L. L. (Harbor Gen. Hosp., Torrance, Calif.). *Amer J Surg* 118(2):177-181, 1969.

6266 **RETROPERITONEAL SPACE ABSCESSES.** *(E.)* Stevenson, E. O. S. (VA Ctr., Los Angeles, Calif.) and R. S. Ozeran. *Surg Gynec Obstet* 128(6):1202-1208, 1969.

6267 **AMYLOID. VIII. ON STRAIN VARIABILITY IN EXPERIMENTAL MURINE AMYLOIDOSIS.** *(E.)* Ram, J. S. (Natl. Inst. Arthritis Metabolic Dis., Bethesda, Md.), R. A. Delellis and G. G. Glenner. *Proc Soc Exp Biol Med* 130(2):462-464, 1969.

6268 **STAGED REPAIR OF GASTROSCHISIS WITH SILASTIC SHEETING.** *(E.)* Cordero, L. (Yale U. Sch. Med., New Haven, Conn.), R. J. Touloukian and L. K. Pickett. *Surgery* 65(4):676-682, 1969.

6269 **USE OF PAPASE IN PREVENTION OF EXPERIMENTAL PERITONEAL ADHESIONS.** *(E.)* Kapur, B. M. L. (All India Inst. Med. Sciences, New Delhi), J. R. Talwar and S. M. Gulati. *Surgery* 65(4):629-632, 1969.

6270 **POST-OPERATIVE WOUND SEPSIS IN GENERAL SURGERY. I. MATERIAL, METHODS AND FREQUENCY.** *(E.)* Jepsen, O. B. (Munic. Hosp., Copenhagen, Denmark), S. O. Larsen and V. F. Thomsen. *Acta Chir Scand* Suppl. 396:73-79, 1969.

6271 **POST-OPERATIVE WOUND SEPSIS IN GENERAL SURGERY. II. AN ASSESSMENT OF FACTORS INFLUENCING THE FREQUENCY OF WOUND SEPSIS.** *(E.)* Jepsen, O. B. (Munic. Hosp., Copenhagen, Denmark), S. O. Larsen and V. F. Thomsen. *Acta Chir Scand* Suppl. 396:80-90, 1969.

6272 **POST-OPERATIVE WOUND SEPSIS IN GENERAL SURGERY. III. AN EVALUATION OF THE POST-OPERATIVE ADMINISTRATION OF ANTIBIOTICS.** *(E.)* Jepsen, O. B. (Munic. Hosp., Copenhagen, Denmark), S. O. Larsen and V. F. Thomsen. *Acta Chir Scand* Suppl. 396:91-97, 1969.

6273 **LEIOMYOSARCOMA OF RETROPERITONEUM.** *(E.)* Kay, S. (Med. Coll. Virginia, Richmond) and D. D. McNeill. *Surg Gynec Obstet* 129(2):285-288, 1969.

6274 **THREE CASES OF GASTROINTESTINAL BLEEDING FOLLOWING BURNS. [CASE REPORT]** *(E.)* Sorensen, B. (Munic. Hosp., Copenhagen, Denmark) and M. Thomsen. *Acta Chir Scand* Suppl. 396: 36-40, 1969.

6275 **ABDOMINAL TUBERCULOSIS IN A CHILD.** *(E.)* Valman, H. B. (Queen Elizabeth Hosp. Child. London, England). *Brit Med J* 3(5670):570-571, 1969.

6276 **DEHYDRATION SYNDROME IN MALNOURISHED IRANIAN CHILDREN.** *(E)* Sadre, M. (Pahlavi Hosp., U. Teheran, Iran), H. Hedayat, M. Gharib, Z. Ghavam and G. Donoso. *Amer J Clin Nutr* 22(2):139-146, 1969.

6277 **THE MANAGEMENT OF FUNCTIONAL CONSTIPATION IN INFANTS AND CHILDREN.** *(E.)* McElwain, J. W. (Bethpage, N. Y.), R. M. Alexander and M. D. MacLean. *Med Times* 97(5):174-176, 1969.

6278 **DISTURBANCES OF INVOLUTION OF DUCTUS OMPHALOENTERICUS. PERSONAL OBSERVATION COVERING THE PAST TEN YEARS.** *(Cz.)* Kouba, R. (Surg. Dept., Dist. Hlth. Syst., Opava, Czechoslovakia) *Rozhl Chir* 47(1):25-30, 1968.

6279 **TWO CASES OF RENDU-OSLER DISEASE WITH DIGESTIVE TRACT BLEEDING.** *(Pol.)* Pokorski, M. (Czerniakowski Hosp., Warsaw, Poland) and B. Pulińska. *Wiad Lek* 21(10):865-869, 1968.

6280 **SCHISTOSOMIASIS. [EDITORIAL]** *(Fr.)* Gentilini, M. *Presse Med* 76(10):443-444, 1968.

6281 **DISTRIBUTION OF PERORALLY ADMINISTERED COPPER IN THE ORGANS OF RATS.** *(E.)* Russanov, E. and P. Balevska. *Izv Inst Fiziol (Sofiia)* 11:125-130, 1968.

6282 **INTERCOSTAL ABDOMINAL HERNIA IN AN AFRICAN** *(Fr.)* Herning, R. and B. Maistre. *Mem Acad Chir (Paris)* 94(10/11):315-317, 1968.

6283 **A NEW AGENT FOR THE TREATMENT OF LIVER FLUKE INFECTION (FASCIOLIASIS).** *(E.)* Mrozik, H. (Merck Sharp Dohme Res. Lab., Rahway, N.J.) H. Jones, J. Friedman, G. Schwartzkopf, R. A. Schardt, A. A. Patchett, D. R. Hoff, J. J. Yakstis, R. F. Riek, D. A. Ostlind, G. A. Plishker, R. W. Butler, A. C. Cuckler and W. C. Campbell *Experientia* 25(8):883, 1969.

6284 **TREATMENT OF INTESTINAL PARASITOSES. II.** *(Rev.) (Por.)* Huggins, D. (Fac. Med., U. Federal Pernambuco, Brazil). *Rev Brasil Med* 25(11):737-741, 1969.

6285 **SURGICAL TREATMENT OF STRANGULATED DIAPHRAGMATIC HERNIA. [CASE REPORT]** *(Rus.)* Antonenkov, G. M. (2nd Moscow Clin. Infect. Hosp., USSR). *Klin Khir (Kiev)* (7):54-55, 1967.

6286 **TRAUMATIC DIAPHRAGMATIC HERNIAS. [CASE REPORT]** *(Rus.)* Kantor, Z. M. (Kiev Inst. Postgrad, Med., USSR) and Iu. N. Klenus. *Klin Khir (Kiev)* (7):52-54, 1967.

6287 **CYST IN THE GREATER OMENTUM OF A 5 YEAR OLD CHILD. [CASE REPORT.]** *(Rus.)* Poguliaiko, N. M. (N. I. Pirogov Vinnitsa Med. Inst., USSR), I. I. Kiievskii and V. Ie. Maniak. *Klin Khir (Kiev)* (8):78, 1967.

6288 **PRIMARY SARCOMA OF THE DIGESTIVE TRACT IN THE ABDOMINAL CAVITY.** *(Sp.)* Gomez Sigler, J. (Ibiza Sanat. Social Security, Madrid, Spain) *Cir Ginec Urol* 22(3):332-336, 1968.

6289 **THE USE OF PROTEINASE INHIBITORS IN SURGERY. RESULTS OF ALTERNATING ADMINISTRATION OF THE PROTEINASE INHIBITOR TRASYLOL.** *(Ger.)* Moerl, F. K. (Surg. U. Clin. Polyclin., Hamburg, Germany). *Thromb Diach Haemorrh* Suppl. 31:1-87, 1968.

6290 **DERMATOMYOSITIS AND ASSOCIATED LESIONS OF THE GASTROINTESTINAL TRACT.** *(E.)* Gennaro, A. R. (Temple U. Med. Ctr., Philadelphia, Pa.) and H. E. Bacon. *Dis Colon Rectum* 12(4):256-260, 1969.

6291 **SIGNIFICANCE OF THE LAXATIVE ACTION OF GLAUBER'S SALT IN THE TREATMENT OF ANURIC PATIENTS.** *(Ger.)* Csata, S. (Budapest Med. U., Hungary), F. Gallyas, M. Berényi and M. Tóth. *Acta Chir Acad Sci Hung* 8(3):249-256, 1967.

6292 **DEXTRAN IN PREVENTION OF PERITONEAL ADHESIONS.** *(E.)* Polishuk, W. Z. (Hadassah U. Hosp., Jerusalem, Israel) and Y. Aboulafia. *Israel J Med Sci* 3(6):806-808, 1967.

6293 **FOOD POISONING DUE TO BARIUM CARBONATE IN SAUSAGE.** *(E.)* Ogen, S. (Minist. Hlth., Nazareth, Israel), S. Rosenbluth and A. Eisenberg. *Israel J Med Sci* 3(4):565-568, 1967.

6294 **GASTROINTESTINAL BLEEDING, HYPERTENSION AND PARAPROTEINEMIA.** *(E.)* Barzilai, D. (Rambam Govt. Hosp., Haifa, Israel) and R. Einat. *Israel J Med Sci* 3(6):920-927, 1967.

6295 **THE STROM-ZOLLINGER-ELLISON SYNDROME.** *(Nor.)* Haugen, O. A. (Aker Hosp., Oslo, Norway). *Nord Med* 78(34):1094-1097, 1967.

6296 **EPIDEMIOLOGY IN THE CONTROL OF SCHISTOSOMIASIS.** *(Dut.)* Bruijning, C. F. A. (Leiden, Netherlands). *Nederl T Geneesk* 111(46):2078-2084, 1967.

6297 **INVESTIGATION OF THE INCIDENCE OF HELMINTHIASIS USING THE TECHNIQUES OF GRAHAM AND WILLIS.** *(Por.)* Mandarino, E. (Dept. Social Med., Polôni, Brazil), L. A. G. Ferreira, M. A. D. Mobiglia and V. Golin. *Hospital (Rio)* 72(4):1277-1284, 1967.

6298 **EFFECT OF HALIDOR ON ACUTE TOXIC AND OTHER ORGANIC DISEASES ASSOCIATED WITH SPASMS.** *(E.)* Lázár, I. (Sándor Korányi Munic. Hosp., Budapest, Hungary). *Ther Hung* 15(3):103-108, 1967.

6299 **OBSERVATIONS CONCERNING HALIDOR, A NEW ANTISPASMODIC.** *(E.)* Hangos, G. ("Bajcsy-Zsilinszky" Munic. Hosp., Budapest, Hungary). *Ther Hung* 15(3):93-94, 1967.

6300 **ENTEROCOLITIS DUE TO *GEOTRICHUM CANDIDUM* AFTER THERAPY WITH GLUTAMIC ACID.** *(Ger.)* Neagoe, G. (CFR Hosp., Turnu-Severin, Romania) and M. Neagoe. *Deutsch Z Verdau Stoffwechselkr* 27(5/6):205-208, 1967.

6301 **NEW TREATMENT FOR INTESTINAL PARASITOSES.** *(Pol.)* Huggins, D. (Fac. Med., U. Fed. Pernambuco, Recife, Brazil). *Hospital (Rio)* 72(2): 605-619, 1967.

6302 **MUSHROOM POISONING.** *(Fr.)* Gaillard, J. (La Baule, France). *Ouest Med* 20(22):1386-1395, 1967.

6303 **FAMILIAL MESENTERIC HYPERTENSION.** *(Fr.)* Hardy, M. (Saint-Antoine Hosp., Paris, France), J. Y. Barbin and J. Caroli. *Rev Medicochir Mal Foie* 42(6):237-246, 1967.

6304 **ACUTE ABDOMINAL PAIN IN CHILDHOOD.** *(Ger.)* Rieder, R. T. (City Hosp., Schweinfurt, Germany). *Deutsch Med J* 18(19):584-586, 1967.

6305 **HYDATIDOSIS: EPIDEMIOLOGY, CLINICAL PICTURE AND PROPHYLAXIS.** *(Sp.)* Ferrari, I. (Rawson Hosp., Cordoba, Argentina). *Rev Fac Cienc Med Cordoba* 25(4):449-454, 1967.

6306 **IDENTIFICATION OF *ESCHERICHIA COLI* 0111:84 IN THE OUTBREAK OF GASTROENTEROCOLITIS IN PREMATURE BABIES IN THE NURSERY OF THE RIBEIRÃO PRẼTO HOSPITAL CLINICS.** *(Por.)* Raya, L. C. (Ribeirão Prẽto Sch. Med. Gen. Hosp., U. São Paulo, Brasil), C. Solé-Vernin, A. and A. S. Molinari. *Hospital (Rio)* 72(4):1175-1187, 1967.

6307 **CYSTICERCOSIS AND HYDATID CYST DISEASE IN 5,132 AUTOPSIES PERFORMED AT THE PSYCHIATRIC HOSPITAL, SANTIAGO, CHILE (1939-1966).** *(Sp.)* Barrientos, J. (Psychiatric Hosp., Santiago, Chile), E. Schirmer, H. Schenone, R. Aranda, L. Concha and A. Rojas. *Bol Chile Parasit* 22(4):150-155, 1967.

6308 **CONSIDERATIONS FOR BILIARY-DIGESTIVE TRACT ANASTOMOSES.** *(Sp.)* Pi-Figueras, J. Jr. (Santa Cruz San Pablo Hosp., Spain) and R. Gajo Reyero. *An Hosp Santa Cruz San Pablo* 27(3):263-268, 1967.

6309 **PHORESIS IN THE MECHANISM OF TRANSMISSION OF TOXOPLASMOSIS.** *(Por.)* Machado, J. O. L. (Rio de Janeiro Sch. Med., U. Gama Filho, Brazil), S. Silva, A. L. dePinho and F. J. R. Gomes. *Hospital (Rio)* 72(4):1161-1165, 1967.

6310 **THERAPEUTIC TESTS WITH A NEW SYNTHETIC (CICLAMATE OF TETRAMISOL – COFASOL) IN ASCARIASIS.** *(Por.)* Huggins, D. (Inst. Trop. Med., Recife, Brazil). *Hospital (Rio)* 72(4):1271-1275, 1967.

6311 **MASSIVE INTESTINAL BLEEDING. [CASE REPORT]** *(Ger.)* Remé, H. (Med. Acad. Lübeck, Germany). *Z Aerztl Fortbild (Berlin)* 56(12):888-895, 1967.

6312 **TUMORS OF THE PAROTID GLAND.** *(Fr.)* Redon, H. (Natl. Acad. Med., France) *Lille Med* 12(Spec.):1010-1014, 1967.

6313 **CONGENITAL ANTERIOR BILATERAL DIAPHRAGMATIC HERNIA IN A CHILD. [CASE REPORT]** *(Rus.)* Derevianko, I. M. (Stavropol Med. Inst., USSR). *Klin Khir (Kiev)* (7):57, 1967.

6314 **THE NERVOUS SYSTEM AND DIGESTIVE DISEASES.** *(Fr.)* Beauchant, J. and G. Delineau. *Ouest Med* 20(19):1062-1068, 1967.

6315 **KININS–ONE OF MANY MEDIATORS OF THE CARCINOID SPECTRUM.** *(E.)* Melmon, K. L. (U. California Med. Ctr., San Francisco). *Gastroenterology* 55(4):545-548, 1968.

6316 **ABDOMINAL VISCERAL INJURIES IN BATTERED CHILDREN.** *(E.)* Touloukian, R. J. (Yale U. Sch. Med., New Haven, Conn.). *Pediatrics* 42(4): 642-646, 1968.

6317 **AMYLOIDOSIS. CARDIOVASCULAR MANIFESTATIONS IN FIVE ILLUSTRATIVE CASES.** *(E.)* Garcia, R. (Henry Ford Hosp., Detroit, Mich.) and S. M. Saeed. *Arch Intern Med* 121(3):259-266, 1968.

6318 **A CASE OF HEMOPERITONEUM DUE TO RETROPERITONEAL SARCOMA.** *(Bul.)* Mitov, F. (Higher Med. Inst., Plovdiv, Bulgaria) and S. Temelkoz. *Khirurgiia (Sofiia)* 21(2):196-197, 1968.

6319 **GASTROINTESTINAL GAS FOLLOWING FOOD CONSUMPTION.** *(E.)* Steggerda, F. R. (Dept. Physiol. Biophys., U. Illinois, Urbana). *Ann NY Acad Sci* 150(1):57-66, 1968.

6320 **EXPERIENCE WITH THE USE OF A DEFOAMING AGENT IN THE TREATMENT OF GASTROINTESTINAL GAS.** *(E.)* Rider, J. A. (U. California Med. Ctr., San Francisco). *Ann NY Acad Sci* 150(1):170-177, 1968.

6321 **ABDOMINAL GAS: A ROENTGEN APPROACH** *(E.)* Felson, B. (U. Cincinnati Coll. Med., Ohio). *Ann NY Acad Sci* 150(1):141-161, 1968.

6322 **INTRALUMINAL PRESSURE AS RELATED TO INTESTINAL GAS.** *(E.)* Arrage, A. A. (Med. Coll. Virginia, Richmond), K. Tasaka and J. T. Farrar. *Ann NY Acad Sci* 150(1):162-169, 1968.

6323 **THE CLINICAL GAS SYNDROMES: A PATHOPHYSIOLOGIC APPROACH.** *(E.)* Danhof, I. E. (Dept. Physiol., U. Texas, Dallas). *Ann NY Acad Sci* 150(1):127-140, 1968.

6324 **THE SYMPTOM PATTERNS OF GASEOUSNESS** *(E.)* Roth, J. L. A. (U. Pennsylvania Med. Ctr., Philadelphia). *Ann NY Acad Sci* 150(1):109-126, 1968.

6325 **THE INFLUENCE OF FOOD COMPOSITION ON THE RETENTION OF GAS IN THE STOMACH.** *(E.)* Polish, E. (Hahnemann Med. Coll., Philadelphia, Pa.) and U. Kadish. *Ann NY Acad Sci* 150(1):67-7 1968.

6326 **DIABETIC GASTROENTEROPATHY.** *(E.)* Chhetri, M. K. (Dept. Med., Inst. Postgrad. Med. Ed. Res., Calcutta, India), N. D. Chauhury, Q. T. Rahaman, M. R. Das and N. C. Pal. *Bull Inst Postgrad Med Ed Res* 10(2):76-80, 1968.

6327 **EXPERIMENTAL PERITONITIS PRODUCED BY GASTRIC JUICE, BILE OR FECES.** *(E.)* Onodera, T. (Tohoku U. Sch. Med., Sendai, Japan), M. Onuma, G. Miura and M. Kasai. *Tohoku J Exp Med* 96(2):171-180, 1968.

6328 **DIET AND NUTRITIONAL STATUS OF JAPANESE.** *(E.)* Insull, W. Jr. (Keio U., Tokyo, Japan), T. Oiso and K. Tsuchiya. *Amer J Clin Nutr* 21(7): 753-777, 1968.

6329 **CEREBROSPINAL FLUID PRESSURE IN HYPEREMESIS GRAVIDARUM.** *(It.)* Viglione, A. (Autonomous Sch. Obstet., Lucca, Italy) and V. Del Greco. *Riv Neurobiol* 13(1):121-126, 1967.

6330 **OBLITERATION OF THE CELIAC TRUNK. REVASCULARIZATION ANASTOMOSIS. [CASE REPORT]** *(Fr.)* Linquette, M., G. Soots, G. Lemaitre, C. Belbenoit, J. C. Fourlinnie and J. Pommier. *Lille Med* 12(8):889-894, 1967.

6331 DIAGNOSIS AND SURGICAL TREATMENT OF TRAUMATIC STRANGULATED DIAPHRAGMATIC HERNIAS. *(Rus.)* Livshits, Z. Ie. (Belorussian Inst. Postgrad. Med., Minsk, USSR), N. P. Batian and G. I. Kaplan. *Klin Khir (Kiev)* (7):55-57, 1967.

6332 BRONCHOPULMONARY AND GASTROINTESTINAL EFFECTS OF LOBELINE. *(E.)* Cambar, P. J. (U. Pennsylvania Sch. Med., Philadelphia), S. R. Shore and D. M. Aviado. *Arch Int Pharmacodyn* 177(1):1-27, 1969.

6333 AN EXPERIMENTAL STUDY ON PATHOGENESIS OF AMYLOIDOSIS. *(Jap.)* Shoyama, T. (Tokyo Med. Coll., Japan). *J Tokyo Med Coll* 25(6):831-888, 1967.

6334 INTESTINAL INVOLVEMENT IN SCLERODERMA (PROGRESSIVE SYSTEMIC SCLEROSIS) AND ITS SURGICAL TREATMENT. *(Fr.)* Saegesser, F. (Dist. Hosp., Lausanne, Switzerland) and M. Monti. *Schweiz Med Wschr* 99(15):539-546, 1969.

6335 SILICONE IN THE PREVENTION OF PELVIC ADHESIONS. *(E.)* O'Leary, J. A. (U. Miami Sch. Med., Fla.), A. F. Turner and M. A. S. Feldman. *Amer Surg* 35(9):622-623, 1969.

6336 PERITONITIS AND RESPIRATORY FAILURE AFTER ABDOMINAL OPERATIONS. *(E.)* Skillman, J. J. (Harvard Med. Sch., Boston, Mass.), L. S. Bushnell and J. Hedley-Whyte. *Ann Surg* 170(1):122-127, 1969.

6337 MANAGEMENT OF A LARGE FOREIGN BODY IN THE MEDIASTINUM OF A CHILD. [CASE REPORT] *(E.)* Groff, D. B. (U. Pennsylvania Sch. Med., Philadelphia), S. Stool and D. G. Johnson. *Amer Surg* 35(9):630-634, 1969.

6338 PROGRESS IN ABDOMINAL SURGERY. *(Rev.)(E.)* Welch, C. E. (Massachusetts Gen. Hosp., Boston). *Amer J Surg* 118(3):384-390, 1969.

6339 EPIDEMIC GIARDIASIS AT A SKI RESORT. *(E.)* Moore, G. T. (Massachusetts Gen. Hosp., Boston), W. M. Cross, D. McGuire, C. S. Mollohan, N. N. Gleason, G. R. Healy and L. H. Newton. *New Eng J Med* 281(8):402-407, 1969.

6340 PREOPERATIVE EVALUATION AND PREPARATION OF THE ACUTE ABDOMEN. *(E.)* Vernon, S. (Willimantic, Conn.). *J Abdom Surg* 11(7):157-160, 1969.

6341 CLINICAL EXPERIENCE WITH THE DIAGNOSIS AND MANAGEMENT OF GASTROINTESTINAL HEMORRHAGE BY SELECTIVE MESENTERIC CATHETERIZATION. *(E.)* Nusbaum, M. (Grad. Hosp. U. Pennsylvania, Philadelphia), S. Baum and W. S. Blakemore. *Ann Surg* 170(3):506-514, 1969.

6342 GASTRO-INTESTINAL SIDE EFFECTS AND PHYSCHOTROPIC DRUGS. *(E.)* Milner, G. (Claremont Hosp., Mental Hlth. Services, Western Australia). *Med J Aust* 2(3):153-155, 1969.

6343 HYPERSENSITIVITY ABDOMINAL PAIN INDUCED BY ERYTHROMYCIN PROPIONATE ESTOLATE. *(E.)* Grieco, M. H. (St. Luke's Hosp. Med. Ctr., New York, N. Y.). *Med Times* 97(2):149-153, 1969.

6344 EXTRANODAL MALIGNANT LYMPHOMAS AND PSEUDOLYMPHOMAS. *(E.)* Saltzstein, S. L. *Pathology Annual* 4:159-184, 1969.

6345 CLINICAL EXPERIENCE IN THE TREATMENT OF GASTROINTESTINAL GAS. *(E.)* Weiss, J. (Long Beach Mem. Hosp., N. Y.). *Med Times* 97(8):137-142, 1969.

6346 LEAD POISONING IN GURKHA SOLDIERS IN HONG KONG. *(E.)* Power, J. G. P. (Royal Army Med. Corps, Hong Kong), R. M. Barnes, W. N. C. Nash and J. D. Robinson. *Brit Med J* 3(5666):336-337, 1969.

6347 TURISTA IN TEHERAN. TRAVELLERS' DIARRHOEA AT THE EIGHTH INTERNATIONAL CONGRESSES OF TROPICAL MEDICINE AND MALARIA. *(E.)* Kean, B. H. (Cornell U. Med. Coll., New York, N. Y.). *Lancet* 2(7620):583-584, 1969.

6348 OUTBREAK OF GASTROENTERITIS. DUE TO SALMONELLA VIRCHOW IN A MATERNITY HOSPITAL. *(E.)* Rowe, B. (Cent. Publ. Hlth. Lab., London, England), C. Giles and G. L. Brown. *Brit Med J* 3(5670):561-564, 1969.

6349 TROPICAL SPRUE. *(Rev.)(E.)* Banwell, J. G. and S. L. Gorbach. *Gut* 10(5):327-333, 1969.

6350 NEW METHOD OF ABDOMINAL RETRACTION. DESCRIPTION OF A NEW INSTRUMENT. *(E.)* Weinstein, M. (Boulevard Hosp., Astoria, N. Y.). *Arch Surg (Chicago)* 98(5):633-635, 1969.

6351 CHOLERA TODAY. [EDITORIAL] *(E.)* Anonymous. *Lancet* 2(7613):195-196, 1969.

6352 ABDOMINAL TRAUMA FROM SEAT BELTS. *(E.)* Traylor, F. A. (U. Colorado Sch. Med., Denver), W. W. Morgan Jr., J. I. Lucero and J. C. Owens. *Amer Surg* 35(5):313-316, 1969.

6353 GASTROINTESTINAL HEMORRHAGIC NECROSIS. REPORT OF TEN CASES. *(E.)* Bialostozky, D. (Natl. Inst. Cardiol., Mexico City, Mexico), R. Contreras, C. A. Tinajeros and S. Franco-Browder. *Amer J Med* 46(1):90-95, 1969.

6354 CELIAC SCINTIANGIOGRAPHY. *(E.)* King, E. G. (U. Alberta Hosp., Edmonton, Canada) and J. D. R. Miller *Amer J Med* 46(3):394-400, 1969.

6355 THERAPY OF INFANTS WITH HYPERTONIC DEHYDRATION DUE TO DIARRHEA. *(E.)* Bruck, E. (New York Sch. Med., Buffalo), G. Abal and T. Aceto Jr. *Amer J Dis Child* 115(3):281-301, 1968.

6356 WATER RESOURCES AND BILHARZIASIS TRANSMISSION IN THE MISUNGWI AREA, MWANZA DISTRICT, NORTH-WEST TANZANIA. *(E.)* McCullough, F. S. (Inst. Med. Res., Mwanza, Tanzania), V. M. Eyakuze, J. Msinde and H. Nditi *E Afr Med J* 45(5):295-308, 1968.

6357 MALARIA, SICKLING INCIDENCE AND BILHARZIASIS IN RELATION TO AGRICULTURAL CHANGES AND POPULATION STRUCTURE AND ITS MOVEMENT IN ZANZIBAR. *(E.)* Chopra, S. A. (Med. Lab., Zanzibar) *E. Afr Med J* 45(5):309-310, 1968.

6358 THE ROLE OF X-RAY IN THE DIAGNOSIS OF CONGENITAL ANOMALIES IN THE ROTATION AND FIXATION OF THE INTESTINAL TRACT: REPORT OF A FATAL CASE OF SMALL INTESTINAL VOLVULUS ASSOCIATED WITH A RARE CONGENITAL ANOMALY IN THE POSITION OF THE COLON. *(Ger.)* Amend, F. (Inst. Radiol., Rudolf Virchow Hosp., Berlin, Germany) *Radiologe* 8(2):43-48, 1968.

6359 MICROBIOLOGICAL, PARASITIC AND EPIDEMIOLOGICAL CONSIDERATIONS OF INFANTILE DIARRHEAL DISEASE IN BANDUNG, INDONESIA. *(E.)* Thaib, S. (Publ. Hlth. Dept. Perusahaan Negara Bio Farma, Bandung, Indonesia), Nafsiah and M. Roemini. *Paediat Indonesia* 8(4):133-147, 1968.

6360 CLINICAL STUDY OF THE ACTIVITY OF A NEW PREPARATION IN THE THERAPY OF CHRONIC ENTEROCOLITIS. *(Por.)* Jafferian, P. A. (Sao Paulo Med. Sch., Brazil), L. D. Rodrigues, M. P. Vilela, A. A. Costa and S. J. Miszputen. *Folha Med* 57(5):731-746, 1968.

6361 ACUTE INFECTIVE DIARRHOEA. *(E.)* Ramsay, A. M. (Royal Free Hosp., London, England). *Brit Med J* 2(5601):347-350, 1968.

6362 TUBERCULOSIS OF THE ABDOMINAL LYMPH NODES: REPORT OF 4 CASES. *(Fr.)* Nicol, J. Y., L. Faure, J. Pellegrino, P. Font and J. Senegas. *Bordeaux Chir* (1):16-21, 1968.

6363 STRANGULATED EXTERNAL HERNIAS IN CHILDREN. *(Pol.)* Senderak, K. (1st Surg. Clin., Acad. Med., Krakow, Poland). *Pol Przegl Chir* 40(3):230-235, 1968.

6364 POSTOPERATIVE ACUTE INTESTINAL INTUSSUSCEPTION IN CHILDREN. *(Fr.)* Lasserre, J., G. Saint-Supéry, J. M. Girard, M. Touya, J. E. Coqueran and R. Letac. *Bordeaux Chir* (2):85-87, 1968.

6365 TREATMENT OF ACUTE DIARRHEA WITH FURAZOLIDONE-IODOCHLORHYDROXYQUIN. *(Sp.)* Olivera Figueroa, R. (San Agustin Sanitorium, Mexico City, Mexico), A. Cravioto Manzano, R. Bonilla Rebentom and V. Gaitan Galarza. *Medicina (Mex)* 48(1032):136-140, 1968.

6366 METRONIDAZOLE IN THE TREATMENT OF AMEBIASIS IN CHILDREN. *(Sp.)* Delgado y Garnica, R. (Child. Hosp., Tacubaya, Mexico) and J. D. Briones Carlos. *Medicina (Mex)* 48(1034):181-186, 1968.

6367 ELEVENTH SPANISH CONGRESS OF DIGESTIVE PATHOLOGY. *(Sp.)* Vilar Bonet, J. *Rev Esp Enferm Apar Dig* 27(7):1059-1082, 1968.

6368 NEONATAL VOMITING REQUIRING SURGERY. *(Sp.)* Ruiz Company, S. (La Paz Children's Clin., Madrid, Spain). *Bol Soc Valencia Pediat* 10(38):73-86, 1968.

6369 POSTOPERATIVE DANGERS IN CASES OF INTESTINAL PERFORATION RESULTING FROM TYPHOID FEVER. *(Sp.)* Camacho Roncal, V. P. (Obrero Hosp., Lima, Peru) and R. Arrarte, C. *Acad Peru Cir* 20(4):231-269, 1968.

6370 UNCOMMON CLINICAL AND X-RAY PICTURES OF THE GASTRODUODENAL REGION. *(Cz.)* Mersten, A. (Med. Fac., Šafarík U., Košice, Czechoslovakia), J. Ciger and T. Smolnicky. *Cesk Gastroent Vyz* 22(3):137-141, 1968.

6371 A WATERBORNE OUTBREAK OF GASTROENTERITIS IN ADULTS ASSOCIATED WITH *ESCHERICHIA COLI*. *(E.)* Schroeder, S. A. (Natl. Communicable Dis. Ctr., Atlanta, Ga.), J. R. Caldwell, T. M. Vernon, P. C. White, S. I. Granger and J. V. Bennett. *Lancet* 1(7545):737-740, 1968.

6372 ILEUS IN NEPHRITIC COLIC. *(Dut.)* Lindeboom, G. A. (State U., Amsterdam, Netherlands). *Nederl T Geneesk* 112(13):593-595, 1968.

6373 TRANSFER OF DRUG RESISTANCE IN ENTERIC BACTERIA DURING CHEMOTHERAPY. *(Dut.)* Guinée, P. A. M. (State Inst. Publ. Hlth., Utrecht, Netherlands). *Nederl T Geneesk* 112(12):555-562, 1968.

6374 CAPILLARY TOXICOSIS (ABDOMINAL FORM) IN SURGERY. *(Rus.)* Serdiuk, M. P. and V. M. Aslanov. *Khirurgiia (Moskva)* 4(9):64-67, 1968.

6375 **RESTRICTED PHLEGMON IN AREAS OF THE GASTROINTESTINAL TRACT.** *(Rus.)* Murlaga, S. Ie. (4th Munic. Hosp., Magnitogorsk, USSR). *Khirurgiia (Moskva)* 44(9):60-64, 1968.

6376 **EXUDATIVE BILIARY PERITONITIS.** *(Rus.)* Akzhigitov, G. N. (1st Moscow Med. Inst., USSR) and Kh. N. Akzhigitov. *Khirurgiia (Moskva)* 44(9):31-34, 1968.

6377 **THE FUNCTION OF THE ADRENAL CORTEX IN PATIENTS WITH SUPPURATIVE PERITONITIS.** *(Rus.)* Skatin, L. I. (Saratov Med. Inst., USSR) and A. B. Polozov. *Khirurgiia (Moskva)* 44(9):43-48, 1968.

6378 **CANCER OF THE DIGESTIVE TRACT AND CHANGES IN THE ERYTHROCYTE AND LEUKOCYTE SYSTEMS.** *(Sp.)* Gallart-Esquerdo, A. (Gallart-Mones Sch. Dig. Pathol., Barcelona, Spain). *Rev Esp Enferm Apar Dig* 27(3):394-404, 1968.

6379 **LARVA MIGRANS VISCERALIS OF *ASCARIS LUMBRICOIDES* IN THE EXPERIMENTAL HOST (MICE).** *(Ger.)* Buske, M. (Potsdam Inst. Hyg., Germany) and H. Engelbrecht. *Z Parasitenk* 30(4):337-346, 1968.

6380 **EXPERIMENTAL TOXOCARIASIS. I. SOME OBSERVATIONS ON THE HISTOPATHOLOGY OF THE MIGRATION OF *TOXOCARA CANIS* LARVAE IN THE MOUSE.** *(E.)* Burren, C. H. (Wellcome Lab. Trop. Med., Langley Court, Beckenham, England). *Z Parasitenk* 30(2):152-161, 1968.

6381 **EXTRINSIC DENERVATION OF THE INTESTINE BY MEANS OF A COLD PROBE.** *(It.)* Filogamo, G. (Inst. Normal Human Anat., U. Turin, Italy) and R. Muti. *Boll Soc Ital Biol Sper* 44(14):1158-1160, 1968.

6382 **EXPERIMENTAL TOXOCARIASIS. II. *TOXOCARA CANIS* IN THE MOUSE AS A SYSTEM FOR TESTING COMPOUNDS OF POTENTIAL ANTHELMINTIC ACTIVITY.** *(E.)* Burren, C. H. (Wellcome Lab. Trop. Med., Langley Court, Beckenham, England). *Z Parasitenk* 30(2):162-170, 1968.

6383 **DEHYDROEMETINE ORAL TABLETS IN INTESTINAL AMEBIASIS.** *(E.)* Grewal, R. S. (G. S. V. M. Med. Coll., Kanpur, India), S. D. Misra and R. S. Sumra. *Indian J Med Sci* 22(5):295-297, 1968.

6384 **PAROTID SIALOLITHIASIS IN A CHILD.** *(E.)* Kaufman, S. (U. California San Francisco Med. Ctr.). *Amer J Dis Child* 115(5):623-624, 1968.

6385 **EXPERIMENTAL ADMINISTRATION OF NATURAL PANCREATIC JUICE TO DYSTROPHIC CHILDREN WITH DYSENTERY.** *(Rus.)* Zveriaiev, A. P. (Donetsk Med. Inst., USSR). *Pediatriia* 47(1):88-89, 1968.

6386 **PNEUMATOSIS CYSTOIDES INTESTINALIS.** *(It.)* Magaldi, R. (Munic. Hosp., Scansano, Italy) *Osped Ital Chir* 19(3):251-253, 1968.

6387 **CORTICOIDS IN GASTROENTEROLOGY.** *(Fl.)* de Smet, P. (Clin. Intern. Med., U. Gent, Belgium). *T Geneesk* 24(11):590-593, 1968.

6388 **DIARRHEAL DISEASES.** *(Rev.)* *(E.)* Dupont, H. L. (U. Maryland Sch. Med., Baltimore) and R. B. Hornick. *Disease A Month* July – : 1-40, 1969.

6389 **A COMMUNITY STUDY OF INAPPARENT CHOLERA INFECTIONS.** *(E.)* McCormack, W. M. (Massachusetts Gen. Hosp., Boston), M. S. Islam, M. Fahimuddin and W. H. Mosley. *Amer J Epidem* 89(6):658-664, 1969.

6390 **THE EFFECT OF ANTIBIOTIC TREATMENT ON YEASTS GROWING IN STOOLS AND SPUTUM: INITIAL RESULTS OF A STUDY BASED ON 255 STRAINS ISOLATED AT THE PASTEUR INSTITUTE IN LYON IN 1966.** *(Fr.)* Barthe, J. (Pasteur Inst., Lyon, France). *Path Biol* 16(7/8):403-408, 1968.

6391 **PRESENT-DAY VIEWS ON THE PATHOGENESIS OF THE SALMONELLOSES.** *(Rus.)* Greshilo, M. S. (Vinnitsa Med. Inst., USSR). *Sovet Med* 31(5):68-71, 1968.

6392 **DAMAGE TO THE DIGESTIVE SYSTEM CAUSED BY SOME DRUGS.** *(Rev.)* *(Cz.)* Kořenek, J. (Fac. Med., Palacky U., Olomouc, Czechoslovakia). *Vnitrni Lek* 15(3):283-290, 1969.

6393 **CHOLERA IN PREGNANT WOMEN.** *(E.)* Hirschhorn, N. (Beth Israel Hosp., Boston, Mass.), A. M. A. Chowdhury and J. Lindenbaum. *Lancet* 1(7608): 1230-1232, 1969.

6394 **THE PATHOGENIC ACTION OF *S. CRUZI* IN THE HUMAN ORGANISM.** *(Por.)* Muniz, J. (Oswaldo Cruz Inst., Rio de Janeiro, Brazil). *Hospital (Rio)* 72(3):675-700, 1967.

6395 **THE USE OF THE APPARATUS PKS-25, PKS (KTs)-28 AND OTHERS IN SURGERY OF THE STOMACH AND INTESTINE.** *(Rus.)* Mikhalevskii, V. P. (Moscow Regional Cent. Clin. Oncol. Hosp., USSR). *Vestn Khir Grekov* 99(11):69-72, 1967.

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Starting with Volume 3, Number 1, the SUBJECT and AUTHOR INDEXES have been generated directly from computer-stored files. The Indexes to prior volumes were manually prepared.

The Subject Index uses a system of permuted *major class* terms combined with SEE and SEE ALSO references. A *major class* term is one embracing a broad concept which can be broken down into *minor class* terms.

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**will also be found under**

**GASTROINTESTINAL NEOPLASMS, BENIGN**

**and under**

**NEOPLASMS, BENIGN GASTROINTESTINAL.**

In several cases, more than one term is used in the literature to express a single concept. To ensure consistency of indexing and facilitate complete retrieval, it was necessary to select one of these synonyms for indexing purposes. The SEE references have been inserted to guide the User to the preferred term.

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06271 06272 06274 06323 06347 06349 06388 06390
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05991 05992 06122 06150 06159 06183 06201 06204
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05172 05178 05179 05183 05733
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05768 05771 05772 05773 05777 05788 05797 05800
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05393* 05776 05813
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05758 05761 05767 05798 05805 05843 06262 06388
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05298* 05299* 05302 05305 05306 05307 05309 05310
05311 05313 05314 05317 05324 05326 05328 05332
05333 05334 05336 05337 05340 05342 05351 05379*
05414 06004 06006 06024 06055* 06079*
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05099* 05107* 05121 05123 05124 05669* 05908* 05939
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05641
NEOPLASMS,MALIGNANT ESOPHAGUS
05275* 05470* 05471* 05473* 05497 05501 05511 05563
NEOPLASMS,MALIGNANT GALLBLADDER
05608 06149 06166
NEOPLASMS,MALIGNANT GASTROINTESTINAL
05563 05636 06236* 06247 06254 06288 06290
NEOPLASMS,MALIGNANT LARGE INTESTINE
05393* 05744* 05749 05751 05760 05789 05790 05795
05796 05799 05810 05838 05839 05843 05905* 06344
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05559 05560 05563 05564 05585 05674 06344
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06328 06385

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05985 06128* 06137* 06145 06146 06150 06159 06165
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05631 05635 05638 05639 05640 05642 05652 05654
05655 05711 05715 05716 05724 05728
SMALL INTESTINE DISACCHARIDASES
05360* 05735

SMALL INTESTINE DISEASES
05598* 05640 05649 05657 05717 05724
SMALL INTESTINE ENZYMES
05097* 05098* 05208* 05360* 05362* 05364* 05365* 05367*
05598* 05720*

SMALL INTESTINE FISTULAS
05555 05636 05710* 05645 06251
SMALL INTESTINE HISTOLOGY
05090* 05098* 05139 05241 05446 05600* 05601* 05614
05621 05652 05716 05721* 06130* 06237*
SMALL INTESTINE IMMUNOLOGY
05718*
SMALL INTESTINE IN CHILDREN
05420 05613 05633 05646 05703 06036 06245 06364
SMALL INTESTINE INJURIES
05606 05620 05659 06316
SMALL INTESTINE METABOLISM
05168 05170 05364* 05374 05720* 05722* 06123

SMALL INTESTINE MICROORGANISMS
05098* 05649 05728 06300 06243
SMALL INTESTINE MORPHOLOGY
05098* 05139 05446 05612 05638 06130*
SMALL INTESTINE MOTILITY
05153 05187* 05189* 05192* 05193* 05207 05638 05883*
06130* 06245 06300 06368
SMALL INTESTINE MUCOSA
05090* 05097* 05098* 05142 05160* 05178 05187* 05208*
05360* 05362* 05367* 05369 05420 05446 05600* 05603*
05612 05652 05655 05719* 05720* 05721* 05733 06077*
06226* 06237*
SMALL INTESTINE NEOPLASMS
05651 05653
SMALL INTESTINE NEOPLASMS,BENIGN
05626 05652 05655
SMALL INTESTINE NEOPLASMS,MALIGNANT
05596* 05602* 05621 05626 05630 05639 05652 05658
05681 06344
SMALL INTESTINE OBSTRUCTION
05193* 05601* 05606 05615 05617 05623 05624 05629
05631 05642 05644 05646 05651 05652 05827 06022
06139* 06248 06321 06340 06364 06358 06386
SMALL INTESTINE PATHOLOGY
05241 05599* 05600* 05610 05612 05625 05629 05635
05649 05650 05652 05653 05655 05657 05710* 05712
06380 06386
SMALL INTESTINE PERFORATION
05620 05622 05635 05647 05694 05696 05712 05716
06369
SMALL INTESTINE PERFUSION
05719*
SMALL INTESTINE RADIOLOGY
05623 05638 05642 05652 05654 05655 05661 05715
05728 05738* 06130*
SMALL INTESTINE SECRETION
05159* 05161* 05139* 05207 05361* 05657 05719* 05857
06237*
SMALL INTESTINE STRICTURE
05648 05844
SMALL INTESTINE SURGERY
05192* 05205 05389 05488 05548 05589 05596* 05597*
05604* 05609 05611 05612 05613 05614 05615 05619
05621 05624 05628 05631 05632 05637 05640 05646
05648 05653 05654 05655 05656 05710* 05711 05716
05717 06036 06187 06188 06217 06258 06278 06334
06364 06369 06386
SMALL INTESTINE TRANSPLANTATION
05204 05627 05656
SMALL INTESTINE TREATMENT
05597* 05625 05635 05717
SMALL INTESTINE ULCERS
05706 05724
SMALL INTESTINE ULCERS,NONSPECIFIC
05671
SMALL INTESTINE ULTRASTRUCTURE
05125 05446
SMALL INTESTINE VOLVULUS
05597* 05646 06340 06358
SMALL INTESTINE,DISEASES ASSOCIATED WITH
05602* 05714
SMALL INTESTINE,DRUG EFFECTS ON
05098* 05154* 05156* 05193* 05365* 06300
SMALL INTESTINE,HORMONAL CONTROL OF
05189* 05362*
SMALL INTESTINE,NERVOUS CONTROL OF
05139 06381
SMALL INTESTINE,TOXIC EFFECTS ON
06237*

SMALL ITNESTINE PATHOLOGY
05607
SMOOTH MUSCLE
06322
SMOOTH MUSCLE MORPHOLOGY
05139 05206 05559
SMOOTH MUSCLE PHARMACOLOGY
05195* 05196* 05336
SMOOTH MUSCLE PHYSIOLOGY
05092* 05188* 05190* 05195* 05196* 05207
SODIUM ABSORPTION
05605* 06179
SODIUM EXCRETION
05164*
SPASM,ESOPHAGUS
05482
SPHINCTER OF ODDI
SEE ALSO BILIARY TRACT
05203 05464 06158 06162 06167 06188
SPHINCTER,ANUS
05815
SPHINCTER,ESOPHAGUS
05195* 05196* 06323 06324
SPLEEN
05150 05566 05693 05924* 05993 05995 06026 06041
06101* 06141 06199 06261 06264 06281 06333
SPLENOMEGALY
06357
SPRUE
05098* 05429 05600* 05719* 05729 06130* 06388
SPRUE,TROPICAL
05446 05721* 06349

STEATORRHEA
05179 05520* 05665* 05881* 06256 06349 06388
STEATOSIS,ALCOHOLIC
05963 06125
STEATTORRHEA
06388
STEROID METABOLISM,LIVER
05181 05352 05934
STEROIDS
SEE ALSO CORTICOSTEROIDS
SEE ALSO LIVER CHOLESTEROL METABOLISM
05173 05363* 05919*

STOMACH
SEE ALSO BEZOARS
SEE ALSO GASTRITIS
SEE ALSO PYLORIC OBSTRUCTION
05562 05693 06325
STOMACH ABSORPTION
05155* 05165* 05177
STOMACH ACID SECRETION
05155* 05169 05184 05223* 05226* 05227* 05232* 05233*
05234* 05237* 05238* 05241 05246 05247 05248 05250
05251 05252 05386 05406* 05416 05513* 05582 05590
05692 05877 06076*
STOMACH ANOMALIES
05500 05587
STOMACH BIOCHEMISTRY
05097* 05136 05228* 05253 05366* 05384
STOMACH BIOPSY
05411 05440 05560 05561 06013 06076*
STOMACH CANCER
05129 05397* 05416 05423 05501 05514* 05516* 05518*
05527 05534 05536 05537 05539 05540 05542 05547
05563 05564 05567 05571 05573 05574 05580 05584
05585 05710*
STOMACH CARCINOGENESIS
05516* 05518*
STOMACH CIRCULATION
05231* 05236* 05515* 05546
STOMACH CYSTS
05551
STOMACH DIAGNOSIS
05182 05224* 05257 05398* 05406* 05411 05450 05452
05513* 05527 05533 05538 05540 05550 05553 05560
05561 05565 05572 05575 05579 05583 05584 05586
05587 05690 06295 06344 06370 05532
STOMACH DIAGNOSIS,GASTRIC ANALYSIS IN
05250 05509
STOMACH DISEASE EPIDEMIOLOGY
05516*
STOMACH DISEASES
05416 05507 05575 05577 05578 05591
STOMACH DIVERTICULA
05583
STOMACH ELECTROLYTE SECRETION
05398*
STOMACH ENDOSCOPY
05423 05440 05450 05452 05575 05576 05583 05586
06320
STOMACH ENZYMES
05097* 05465

STOMACH FISTULAS
05555 06176 06251
STOMACH HISTOLOGY
05111* 05116* 05129 05227* 05228* 05401* 05533 05560
05661* 06076* 06237* 06344
STOMACH IMMUNOLOGY
SEE ALSO INTRINSIC FACTOR ANTIBODY
05224* 05251 05521* 06227*
STOMACH IN CHILDREN
05500 05579 06287
STOMACH INJURIES
05535 05579
STOMACH INTRINSIC FACTOR
05093* 05094* 05161* 05226* 05521* 05526
STOMACH MORPHOLOGY
05111* 05148 05202 05551 05561 05565 05661* 06076*
STOMACH MOTILITY
05182 05186* 05188* 05189* 05192* 05198* 05202 05225*
05252 05257 05554 05572 05594 06245
STOMACH MUCOSA
05097* 05116* 05135 05142 05153 05160* 05190* 05201
05227* 05228* 05230* 05231* 05257 05386 05406* 05416
05440 05465 05524 05533 05551 05568 05576 05579
05583 05587 05591 05594 05661* 05663* 05692 05878
05879 06076* 06227* 06237* 05111*

STOMACH MUCUS SECRETION
05416 06320
STOMACH NEOPLASMS
05524 05533 05557 05575 05586
STOMACH NEOPLASMS,BENIGN
05401* 05527 05531 05538 05541 05551 05553 05559
STOMACH NEOPLASMS,MALIGNANT
05129 05275* 05401* 05501 05514* 05518* 05522* 05523*
05534 05536 05537 05539 05540 05542 05547 05550
05559 05560 05563 05564 05585 05674 06344
STOMACH PATHOLOGY
05386 05411 05522* 05523* 05524 05527 05536 05544
05553 05560 05572 05584 05585 05586 06344
STOMACH PEPSIN SECRETION
05233* 05234* 05582 06076*
STOMACH PERFORATION
05246 05573 05592
STOMACH POLYPS
05584
STOMACH RADIOLOGY
05182 05486 05494 05527 05538 05553 05583 05584
05586 05587 05690 05924* 06370
STOMACH SECRETION
05116* 05136 05160* 05161* 05189* 05200 05225* 05230*
05232* 05235* 05236* 05238* 05240 05249 05253 05254
05255 05406* 05465 05529 05540 05591 05662* 06177
06222 06237* 06244 06327
STOMACH SECRETION DISORDERS
05093* 05094* 05256 05257 05568
STOMACH SECRETION IN DISEASE
05226*
STOMACH SECRETION STUDY TECHNIQUES
05116* 05161* 05245 05246 05249 05416 05432 05595*
STOMACH SECRETION,DRUG EFFECTS ON
05161* 05199 05229* 05237* 05238* 05239 05244 05252
05662*
STOMACH SECRETION,HORMONAL CONTROL OF
05190* 05243 05252 05582
STOMACH SECRETION,NERVOUS CONTROL OF
05232* 05245 05252 05562 05690 06076*
STOMACH SECRETIONS
05228*
STOMACH SURGERY
SEE ALSO GASTRECTOMY
05186* 05202 05246 05386 05427 05455 05456 05486
05515* 05517* 05530 05532 05533 05539 05544 05546
05548 05549 05551 05565 05566 05571 05572 05573
05574 05577 05579 05581 05582 05584 05595* 05656
05667* 05669* 05675 05676 05678 05683 05699 05708
05877 05878 05879 05880 05883* 06160 06176 06244
06274 06388
STOMACH SURGERY COMPLICATIONS
05200 05665*
STOMACH SURGERY TECHNIQUES
05588 05593
STOMACH TREATMENT
05256 05257 05543 05575

STOMACH ULCERS
05164* 05199 05225* 05227* 05228* 05246 05416 05527
05564 05573 05578 05583 05587 05663* 05670 05672
05674 05676 05678 05682 05683 05685 05689 05693
05699 05701 05702 05704 05706 05708 05927 06061
06235* 06295 05223* 05661* 05667*
STOMACH ULTRASTRUCTURE
05116*
STOMACH VOLVULUS
05530 05565
STOMACH,DISEASES ASSOCIATED WITH
05241
STOMACH,DRUG EFFECTS ON
05135 05161* 05177 05251 05257 05513* 05702 06227*
STOMACH,HORMONAL CONTROL OF
05231*
STOMACH,NERVOUS CONTROL OF
05189* 05257 05594
STOMACH,TOXIC EFFECTS ON
05535 06237*
STRANGULATION
05806 06363
STRESS
05107*
STRESS FACTORS IN ULCERS
05223* 05225* 05228* 05663* 05668* 05689 05700
STRICTURE,BILIARY TRACT
06133* 06187 06198
STRICTURE,ESOPHAGUS
05435 05467* 05468* 05471* 05473* 05476 05481 05502
05507 05508 05582 06324 06368 05503
STRICTURE,SMALL INTESTINE
05648 05844
STRICTURES,ESOPHAGUS
05503
STUDIES OF JAUNDICE,CLINICAL
05919*
STUDIES OF LIVER,EXPERIMENTAL
05314
STUDIES OF PANCREAS,CLINICAL
05863
STUDIES OF SALMONELLOSIS,CLINICAL
06233*
STUDY TECHNIQUES,ABSORPTION
05695 06259
STUDY TECHNIQUES,DYE
SEE MARKER STUDIES
STUDY TECHNIQUES,RADIOISOTOPE
SEE TRACER STUDIES
STUDY TECHNIQUES,SECRETION
05413 05430
STUDY TECHNIQUES,STOMACH SECRETION
05116* 05161* 05245 05246 05249 05416 05432 05595*
STUDY,HEIDENHAIN POUCH
05160* 05229*
SUCROSE ABSORPTION
05730

SUGAR INTOLERANCE
05730

SULFOBROMOPHTHALEIN
05277* 05412 05426 05427 05428 05443 05457 05933
05989 05990 06021 06064 06097* 05442 05321
SURGERY APPARATUS
06246
SURGERY COMPLICATIONS
05124 05475 05477 05487 05554 05668* 05676 05680
05768 05769 05885 05948 05966 06026 06045 06106
06148 06219 06246 06252 06264 06270 06271 06272
06335 06336
SURGERY COMPLICATIONS,STOMACH
05200 05665*
SURGERY-INDUCED SECONDARY MALABSORPTION
05637
SURGERY TECHNIQUES
05330 05331 05348 05389 05444 05474 05475 05477
05479 05488 05493 05498 05502 05549 05577 05589
05628 05637 05648 05659 05672 05680 05768 05807
05808 05809 05815 05821 05828 05836 05898 05956
05966 06001 06002 06016 06017 06039 06041 06133*
06144 06188 06208 06219 06264 06308 06330 06370
SURGERY TECHNIQUES,STOMACH
05588 05593
SURGERY,ABDOMEN
05427 05462 05490 05583 05616 05618 05620 05783
05811 05811 05813 05819 05827 05853 05885 05971
06045 06196 06246 06253 06257 06261 06262 06264
06270 06271 06273 06282 06289 06330 06331 06336
06338 06350 06362 06363 06368 06370 06374
SURGERY,ABDOMINAL
06335
SURGERY,ANUS
05808 05815
SURGERY,APPENDIX
05768 05774 05775

SURGERY,BILIARY
05385
SURGERY,BILIARY TRACT
05137 05433 05444 05464 05668* 05890 05898 05935
05946 06001 06002 06019 06126* 06128* 06133* 06135*
06136* 06140 06146 06151 06152 06156 06158 06162
06168 06175 06176 06188 06189 06205 06207 06208
06209 06213 06217 06218 06219 06220 06222 06308
**06198 06195**

SURGERY,CANCER
05497 05501 05514* 05539 05567 05573 05574 05658
05762 05799 05817 05824 05827 05831 06175 06210
06395
SURGERY,CHOLELITHIASIS
06145 06209
SURGERY,DUODENUM
05444 05456 05554 05589 05622 05647 05656 05658
05659 05667* 05675 05676 05677 05680 05696 05703
05874
SURGERY,ESOPHAGUS
05434 05467* 05468* 05469* 05470* 05471* 05472* 05473*
05474 05476 05477 05478 05480 05483 05486 05487
05488 05490 05493 05496 05497 05498 05499 05502
05503 05504 05506 05507 05609
SURGERY,GALLBLADDER
05427 05890 06145 06149 06152 06157 06165 06167
06179 06186 06187 06190 06191 06211 06213 06214
06220 06221 06350
SURGERY,GASTROINTESTINAL
SEE ALSO GASTROINTESTINAL TREATMENT
05564 05647 05679 05695 05706 05792 05927 06235*
06265 06268 06269 06272 06308 06352 06368 06375
06387
SURGERY,LARGE INTESTINE
05205 05399* 05498 05574 05632 05710* 05739* 05748
05749 05753 05757 05761 05766 05771 05774 05775
05777 05781 05782 05783 05799 05800 05801 05810
05821 05822 05836 05905* 06029 06257 06258 06269
06278 06334 06369 06395
SURGERY,LIVER
05121 05330 05331 05332 05345 05346 05574 05911*
05932 05935 05953 05955 05956 05962 05964 05966
05968 05975 05977 06001 06002 06017 06042 06057
06069 06106 06120
SURGERY,MESENTERY
05624
SURGERY,PANCREAS
05358 05377* 05574 05658 05847* 05856 05863 05865
05866 05869 05899 05901
SURGERY,PANCREATITIS
05866 05887 05888 05893 06165
SURGERY,PEPTIC ULCER
05467* 05547 05582 05593 05660* 05664* 05666* 05667*
05677 05682 05685 05687 05690 **06367**
SURGERY,PURTAL HYPERTENSION
05924* 06041
SURGERY,RECTUM
05619 05668* 05749 05769 05786 05799 05808 05809
05821 05828 05831 06265 06350
SURGERY,SALIVARY GLAND
06312 06384
SURGERY,SMALL INTESTINE
05192* 05205 05389 05488 05548 05569 05595* 05597*
05604* 05609 05611 05612 05613 05614 05615 05619
05621 05624 05628 05631 05632 05637 05640 05646
05648 05653 05654 05655 05656 05710* 05711 05716
05717 06036 06187 06188 06217 06258 06278 06334
06364 06369 06386
SURGERY,STOMACH
SEE ALSO GASTRECTOMY
05186* 05202 05246 05386 05427 05455 05456 05486
05515* 05517* 05530 05532 05533 05539 05544 05546
05548 05549 05551 05565 05566 05571 05572 05573
05574 05577 05579 05581 05582 05584 05595* 05656
05667* 05669* 05675 05676 05678 05683 05699 05708
05877 05878 05879 05880 05883* 06160 06176 06244
06274 06388
SURGERY,ULCER
05674 06311
SURGERY,ULCERATIVE COLITIS
05832* 05838 05843
SURGERY,VASCULAR
05566 06252
SURGERY,VOLVULUS
05613 05802

SURGICAL APPARATUS
05498 06350 06395
SURGICAL APPARATUS AND TECHNIQUES
06335
SURGICAL APPARATUS,EXPERIMENTAL
05807
SURGICAL TECHNIQUES
06265
SURGICAL TECHNIQUES,EXPERIMENTAL
05204 05357 05385 05739* 06197
SURGICAL TREATMENT OF BLEEDING
05578 05831 05924* 06124 06235* 06369

SURVIVAL RATES,CANCER
05514* 05522* 05560 05574 05658 05744* 05914*
05567
SYNDROME,BANTI
05980
SYNDROME,BUDD-CHIARI
05906* 05970
SYNDROME,CARCINOID
SEE ALSO CARCINOIDS
SEE ALSO SEROTONIN
05610 05638 05651 05760 05851 06168 06315
SYNDROME,DUBIN-JOHNSON
05130 06048
SYNDROME,DUMPING
05589
SYNDROME,GASTRECTOMY-INDUCED AFFERENT LOOP
05688
SYNDROME,GASTRECTOMY-INDUCED DUMPING
05545 05548 05588 05656 05677
SYNDROME,MALLORY-WEISS
05484
SYNDROME,PEUTZ-JEGHERS
05798
SYNDROME,ROTORS
05127
SYNDROME,ZIEVES
05984 06094*

SYNDROME,ZOLLINGER-ELLISON
05242 05677 05853 05858 05864 05870 06244 05860

THERAPY,DIETETIC
05373 05671 05710* 06046 06328
THROMBOSIS
06252
THROMBOSIS,HEPATIC VEIN
SEE BUDD-CHIARI SYNDROME
THYROID GLAND
05243 05294* 05306 06052*
TOXIC EFFECTS OF RADIATION
SEE ALSO TOXIC EFFECTS ON BILIARY TRACT
SEE ALSO TOXIC EFFECTS ON ESOPHAGUS
SEE ALSO TOXIC EFFECTS ON GASTROINTESTINAL TRACT
SEE ALSO TOXIC EFFECTS ON LARGE INTESTINE
SEE ALSO TOXIC EFFECTS ON LIVER
SEE ALSO TOXIC EFFECTS ON PANCREAS
SEE ALSO TOXIC EFFECTS ON RECTUM
SEE ALSO TOXIC EFFECTS ON SMALL INTESTINE
SEE ALSO TOXIC EFFECTS ON STOMACH
05632 05725 05826 06045
TOXIC EFFECTS ON BILIARY TRACT
06147
TOXIC EFFECTS ON ESOPHAGUS
05502 05503
TOXIC EFFECTS ON GASTROINTESTINAL TRACT
05172 05558 05569 06293 06298 [illegible] 06342 06346
06372 06392
TOXIC EFFECTS ON LARGE INTESTINE
05835 06237*
TOXIC EFFECTS ON LIVER
05132 05209 05279* 05294* 05299* 05306 05308 05311
05312 05349 06034 06050* 06051* 06052* 06058 06067
06117
TOXIC EFFECTS ON PANCREAS
05900
TOXIC EFFECTS ON RECTUM
05826
TOXIC EFFECTS ON SMALL INTESTINE
06237*
TOXIC EFFECTS ON STOMACH
05535 06237*
TOXIC HEPATITIS
SEE TOXIC EFFECTS ON LIVER
TOXINS,CHEMICAL
SEE ALSO TOXIC EFFECTS ON BILIARY TRACT
SEE ALSO TOXIC EFFECTS ON ESOPHAGUS

TOXINS,CHEMICAL
CONTINUED
SEE ALSO TOXIC EFFECTS ON GASTROINTESTINAL TRACT
SEE ALSO TOXIC EFFECTS ON LARGE INTESTINE
SEE ALSO TOXIC EFFECTS ON LIVER
SEE ALSO TOXIC EFFECTS ON PANCREAS
SEE ALSO TOXIC EFFECTS ON RECTUM
SEE ALSO TOXIC EFFECTS ON SMALL INTESTINE
SEE ALSO TOXIC EFFECTS ON STOMACH
05312 05503 06293 06346
TRACE ELEMENT AND MINERAL ABSORPTION
05580 05730
TRACE ELEMENT AND MINERAL METABOLISM
06099*
TRACE ELEMENT AND MINERAL METABOLISM,LIVER
05279*
TRACE ELEMENT METABOLISM,LIVER
05115* 06281
TRACER STUDIES
05159* 05165* 05166* 05171 05179 05185 05192* 05197*
05258* 05262* 05263* 05286* 05315 05335 05359* 05364*
05375 05390 05402* 05427 05428 05443 05454 05455
05602* 05695 05916* 05938 06050* 06074* 06150 06232*
TRANSPLANTATION
SEE ALSO IMMUNOLOGY
06338
TRANSPLANTATION,LIVER
05096* 05331 05345 05346 05347 05348 05357 05955
05962 06016 06017 06069
TRANSPLANTATION,PANCREAS
05377* 05856
TRANSPLANTATION,SMALL INTESTINE
05204 05627 05656
TRANSPORT,ION
05190* 05230* 05719*
TRAUMA IN CHILDREN,ABDOMEN
05861 05901 06316
TRAUMA,ABDOMEN
05394* 05461 05868 06189 06338
TRAUMA,BILIARY TRACT
06025
TRAUMA,DUODENUM
05622 05688
TRAUMA,ESOPHAGUS
05468* 05490 05509
TRAUMA,GASTROINTESTINAL
05647 06352
TRAUMA,LARGE INTESTINE
05799
TRAUMA,LIVER
05953 05966
TRAUMA,PANCREAS
05901
TRAUMA,RECTUM
05799 05828
TRIGLYCERIDE ABSORPTION
05166* 05170 05198* 06045 06256
TROPICAL SPRUE
05446 05721* 06349
TRYPSIN
05260* 05263* 05889
TRYPSIN SECRETION,PANCREAS
05260* 05263* 05877 05879 05896
TUBERCULOSIS
05483 05578 05710* 06211 06275 06362
TUBERCULOSIS,LIVER
06027
TYPHOID FEVER
SEE ALSO SALMONELLOSIS
[illegible] 06369 06391
TYPHOID FEVER CARRIER STATE
06151
TYPHOID FEVER COMPLICATIONS
06233*
TYPHOID FEVER IMMUNOLOGY
06238*

ULATRASTRUCTURE,LIVER
05105*
ULCER COMPLICATIONS,PEPTIC
05419 05592 05668* 05684 05694 [illegible] 05703
ULCER DIAGNOSIS
05681
ULCER DIAGNOSIS,PEPTIC
05398* 05401* 05406* 05416 05451 05505 05527 05704
ULCER DIAGNOSIS,RADIOLOGY IN PEPTIC
05419 05451
ULCER EPIDEMIOLOGY,PEPTIC
05682
ULCER ETIOLOGY
05242 05674 05724
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GASTROENTEROLOGY ABSTRACTS and CITATIONS is a publication of the National Institute of Arthritis and Metabolic Diseases. This specialized information medium has been initiated to fill an existing great need in the field of gastroenterology and to assist the Institute in meeting its obligations to foster and support laboratory and clinical research into the nature, causes, and therapy of diseases of the gastrointestinal tract. Publication of GASTROENTEROLOGY ABSTRACTS and CITATIONS makes available citations of all current papers relevant to this field from medical journals published throughout the world. Approximately one-third of the citations dealing with the major aspects of gastroenterology has accompanyi abstracts.

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## LANGUAGE ABBREVIATIONS

| | | | |
|---|---|---|---|
| Afr. | Afrikaans | It. | Italian |
| Ar. | Arabic | Jap. | Japanese |
| Bul. | Bulgarian | Kor. | Korean |
| Ch. | Chinese | Latv. | Latvian |
| Cz. | Czech | Lith. | Lithuanian |
| Dan. | Danish | Nor. | Norwegian |
| Dut. | Dutch | Pol. | Polish |
| E. | English | Por. | Portuguese |
| Eston. | Estonian | Rum. | Rumanian |
| Fin. | Finnish | Rus. | Russian |
| Fl. | Flemish | Ser. | Serbo-Croatian |
| Fr. | French | Sl. | Slovak |
| Ger. | German | Sp. | Spanish |
| Gr. | Greek | Sw. | Swedish |
| Heb. | Hebrew | Th. | Thai |
| Hun. | Hungarian | Turk. | Turkish |
| Ic. | Icelandic | Uk. | Ukrainian |
| In. | Indonesian | Viet. | Vietnamese |

## ABBREVIATIONS USED IN ABSTRACTS

| | | | |
|---|---|---|---|
| ACTH | adrenocorticotropic hormone | mC, $\mu$C | milli-, microcurie(s) |
| ADP | adenosine diphosphate | mg | milligram(s) |
| AMP | adenosine monophosphate | min | minute(s) |
| ATP | adenosine triphosphate | ml | milliliter(s) |
| BSP | sulfobromophthalein | mm | millimeter(s) |
| C | degrees centigrade | MTD | maximum tolerated dose |
| cm | centimeter(s) | ng | nanogram ($10^{-9}$) |
| CNS | central nervous system | pg | picogram ($10^{-12}$) |
| cpm | counts per minute | p.o. | orally |
| DNA | deoxyribonucleic acid | ppm | parts per million |
| e.g. | for example | r | Roentgen |
| g | gram(s) | RBC | red blood cells (erythrocytes),<br>red blood count |
| $\mu$g | microgram(s) | | |
| hr | hour(s) | resp. | respectively |
| i.m. | intramuscular | Rev. | review (only in citations) |
| i.p. | intraperitoneal | RNA | ribonucleic acid |
| IU | international unit(s) | s.c. | subcutaneous |
| i.v. | intravenous | sec | second(s) |
| kg | kilogram(s) | SGOT | serum glutamic-oxalacetic transaminase |
| LD$_{50}$ | median lethal dose(s) | SGPT | serum glutamic-pyruvic transaminase |
| LDH | lactic acid dehydrogenase | U | unit(s) |
| m | meter(s) | UV | ultraviolet |
| M | molar | WBC | white blood cells (leukocytes),<br>white blood count |
| mEq | milliequivalent(s) | | |
| mM | millimolar | yr | year(s) |
| $\mu$M | micromolar | | |

## PRE-CLINICAL SCIENCES

### MORPHOLOGY, CELLULAR STRUCTURE AND HISTOCHEMISTRY

6396 **THE EFFECT OF TAUROLITHOCOLIC ACID LEVEL IN THE BLOOD ON THE RAT LIVER. MORPHOLOGICAL ASPECTS AND CONSIDERATIONS IN HUMAN PATHOLOGY.** *(It.)* Gasbarrini, G. (Inst. Special Med. Pathol. Clin. Methodol., U. Bologna, Italy), F. B. Bianchi, E. Roda, A. De Vecchis and G. Peta. *Arch Ital Mal Appar Dig* 35(5):501-512, 1969.

The authors describe the morphological, histochemical and ultrastructural changes observed in rat liver following a blood load of 0.25% taurolithocolic acid (0.0025 g in 1% water-alcohol solution) administered intracardially for 3 successive days. Microscopically no significant changes were observed; the number of mast cells in the portal spaces was increased. Ultrastructure of the liver, however, revealed alterations in the biliary pole of the hepatocytes, with reduction of the electron density of the microvilli, edema of the liver cells, and appearance of bleb-like cytoplasmic protrusions into the lumen. A marked increase in the number of dense peribiliary bodies was also noted. The authors emphasize the close similarity of these observations with the picture in human cholestasis and hypothesize that in man particular physiopathological conditions occur in which a change in the intestinal bacterial flora, with consequent increased products, absorption and elimination of taurolithocolic acid, can produce disease in the liver.

6397 **ATTACHMENT AND PENETRATION OF *ESCHERICHIA COLI* INTO INTESTINAL EPITHELIUM OF THE ILEUM IN NEWBORN PIGS.** *(E.)* Staley, T. E. (Coll. Vet. Med., Oklahoma State U., Stillwater). E. W. Jones and L. D. Corley. *Amer J Path* 56(3):371-392, 1969.

The sequence of *E. coli* attachment to, and penetration of, ileal epithelial cells of the neonatal pig was examined by electron microscopy. *E. coli* organisms were suspended in 10 ml of sterile saline and the newborn pig, delivered after 110-115 days of gestation by cesarean section was dosed intragastrically with 1 gm/kg body weight. Attachment sites could not be resolved before 20 hr after exposure. Microvilli of absorptive cells were degenerated and exfoliated after contact with intraluminal microorganisms. Attachments were formed between the bacterial cell wall and the apical plasma membrane. The plasmalemma thickened, developed a pinocytototic invagination, and eventually formed a large phagocytic cavity. The terminal web increased in density in response to the attachment, but decreased in density during penetration. The apical tubules atrophied during penetration and were almost absent by 48 hr. Microorganism attachment and penetration seemed to be less selective after 48 hr. The microorganism was enveloped by a phagosome within the apical cytoplasm. Lysosomal structures increased in number and united with the phagosome, but intracellular bacterial digestion was not apparent. Large numbers of envacuolated organisms were found within mature and immature cells on the villus. Penetration of crypt cells was not observed. There was no evidence for microvillus regeneration. Attachment sites, once established, appeared to have microorganisms constantly present. Penetrating organisms were probably replaced rapidly by luminal organisms. *E. coli* enters the neonatal absorptive cell by phagocytosis.

6398 **ULTRASTRUCTURE OF THE CANINE EXOCRINE PANCREAS FOLLOWING CONTINUOUS INTRAVENOUS INFUSION OF SECRETIN AND INJECTION OF PANCREOZYMIN.** *(E.)* Ribet, A. (Purpan Hosp., Toulouse, France), R. Fedou and J. Frexinos. *Digestion* 2(3): 145-158, 1969.

Electron microscopic studies of exocrine pancreas biopsy specimens from 8 dogs, following continuous i.v. infusion of secretin and injection of pancreozymin, show that a presumed specific surstimulation is capable of evoking ultrastructural alterations of the acinar cells which are similar to those observed after experimental intoxication and under pathological conditions. The excreting process of proteins by acinar cells was increased after the injection of pancreozymin: there was an enlargement of the acinar lumina, a multiplication of the apical vacuoles, an apical localization and usually a marked depletion of the zymogen granules within the cells. The dense content of the cisternae of the endoplasmic reticulum, the enlargement of the Golgi complex, the abundance of presumed immature zymogen granules suggest an excreting process which is followed by a rise in the rate of protein synthesis. The abundance of lysosomal structures chiefly after pancreozymin injection, can be attributed to an increase of protein synthesis or to toxic effects of the agents. In the washing out period, the emptiness of the acinar lumen can be explained by diminution of protein secretion.

6399 **LIGHT AND ELECTRON MICROSCOPIC IDENTIFICATION OF SEVERAL TYPES OF ENDOCRINE CELLS IN THE GASTROINTESTINAL MUCOSA OF THE CAT.** *(E.)* Vassallo, G. (Inst. Pathol. Anat. II, U. Rome, Italy), E. Solcia and C. Capella. *Z Zellforsch* 98(3): 333-356, 1969.

Samples of the gastrointestinal tract and pancreas taken from 10 cats were used in this study of endocrine cells. Using selective light microscopy endocrine cells were detected, using the following histological techniques: for the identification of biogenic amines; diazonium, ammoniacal silver and xanthydrol; for granule identification; methyl green-red acid dyes, toluidine blue, HCl-basic dye, lead-hematoxylin, phosphotungstic hematein and argyrophil methods. Results were compared with those of an extensive electron microscopic investigation. Five types of endocrine cells were identified in the gastric mucosa; 3 of these in the pyloric mucosa: 1) the previously described 5-hydroxytryptamine-producing enterochromaffin cell, 2) the gastrin producing G cell, and 3) a cell with an unknown function, called here the X cell. Four types were found in the fundic mucosa: 1) rarely observed enterochromaffin cells, 2) enterochromaffin-like cells (numerous) secreting a 5-hydroxyindole but with ultrastructural and staining differences, 3) A-like cells (few) resembling A cells of the pancreatic islets, and 4) X cells, resembling those in the pyloric mucosa. In the intestinal mucosa at least 3 endocrine cell types were distinguished in its duodenal part: enterochromaffin cells and 2 types of polypeptide-producing cells–some with smaller granules (S cells) and others with larger granules (L cells). Only 2 types were found in the mucosa of terminal ileum: enterochromaffin cells and numerously-occurring cells with large granules resembling in part duodenal L cells.

6400 **OCCURRENCE OF LYSOSOMES AND THE DIFFERENTIATION OF RAT LIVER CELLS.** *(E.)* Dvořák, M. (Med. Fac., J. E. Purkyně U., Brno, Czechoslovakia) and H. Konečná. *Z Zellforsch* 99(2):277-285, 1969.

The occurrence of lysosomes has been investigated electron microscopically and cytochemically in embryonic through adult rat liver cells in the course of ontogenesis. Primary lysosomes occur during the whole period and they originate from the Golgi complex. Some of them assume the appearance of multivesicular bodies. Acid phosphatase activity is lower at the prenatal stage than after birth. The occurrence of secondary lysosomes proceeds in 2 stages. Secondary lysosomes appear frequently at the beginning of differentiation of the liver diverticulum (10-12th day of embryonic life). Later they occur seldom or not at all. At the end of the embryonic period (starting with the 20th day) and especially after birth, they progressively increase in number and move from the region of central cytoplasm peripherally towards the bile capillary. Secondary lysosomes occur in connection with reconstruction of the liver primordium at the beginning of liver development and again with alterations in the metabolism of the liver cell after birth.

6401 **MORPHOGENESIS OF TOXIC FAT-INDUCED CONCENTRIC MEMBRANE ARRAYS IN RAT HEPATOCYTES.** *(E.)* Norback, D. H. (Regional Primate Res. Ctr., U. Wisconsin, Madison) and J. R. Allen. *Lab Invest* 20(4):338-346, 1969.

A toxic constituent of certain fats, isolated and identified as a hexachlorohexahydrophenanthrene, was added to the diet of 40 male Sprague-Dawley rats (150 g). A control group of 35 rats was fed a diet supplemented with concentrations of corn oil equal to that of the toxic fat. At sequential time intervals throughout the 6-week investigation, liver tissue was taken for light and electron microscopic examination. The most prominent alteration in the hepatocytes of rats consuming toxic fat was hypertrophy and reorganization of the intracellular membrane system. Extensive areas of smooth endoplasmic reticulum and arrays of concentric paired membranes pervaded the cytoplasmic matrix. The parallel cisternae of the rough endoplasmic reticulum were reorganized into long, flattened sinuous vesicles. Numerous annular profiles of paired membranes with attached ribosomes were interpreted to represent cylindrical cisternae of the rough endoplasmic reticulum. Concentric annuli of several membrane pairs enclosed cytoplasmic matrix, lipid, mitochondria, lysosomes, and smooth endoplasmic reticulum. Several arrays of the concentric structures were partially circumscribed by lamellae of long, flattened vesicles which were continuous with the rough and smooth endoplasmic reticulum. This reorganization of the rough endoplasmic reticulum, the presence of ribosomes attached to the surfaces of the membranes, and the continuity of these arrays with the endoplasmic reticulum led to the conclusion that the arrays of concentric paired membranes originate from cisternal elements.

6402 **AN ELECTRON MICROSCOPIC INVESTIGATION OF RUMEN MUCOSA.** *(E.)* Lauker, R. (Dept. Dairy Sci., Clemson U., S. C.), W. Chalupa and J. F. Dickey. *J Ultrastruct Res* 28(1-2):1-15, 1969.

Bovine (4 adult Hereford cows) rumen mucosa, appeared in the electron microscope as a parakeratotic stratified squamous epithelium. Cells comprising the substratum basale contained abundant metabolic organelles and numerous large vesicles, which were postulated to function in the assimilation and metabolism of products absorbed from the rumen. Cells that comprise the substratum spinosum contained aggregates of filaments and membrane-bounded mucous granules revealing differentiation directed toward mucus formation. The presence of both keratohyaline and mucous in granular cells is indicative of differentiation directed toward keratinization and mucus production. Partially keratinized, mucus-containing horny cells with fuzzy-coated microvillus extension comprised the stratum corneum. These specific horny cells afford protection and permit absorption to occur.

6403 **STRUCTURAL CHANGES IN BOVINE OSTERTAGIASIS ASSOCIATED WITH INCREASED PERMEABILITY OF THE BOWEL WALL TO MACROMOLECULES.** *(E.)* Murray, M. (Glasgow U. Vet. Hosp., Scotland). *Gastroenterology* 56(4):763-772, 1969.

An electron microscopic study was made of tissues taken from 10 cattle (aged 12 to 15 months) with type 11 ostertagiasis with severe diarrhea, a known protein-losing gastroenteropathy. All had marked hypoalbuminuria. The intercellular spaces between epithelial cells in the parasitized gastric mucosa were dilated by an electron-opaque material probably of a protein nature and between 50 and 90% of the lateral plasmalemmata forming the zonulae occludentes joining such cells were completely or partially separated. These structural changes are probably related to the enhanced permeability of the bowel wall to macromolecules.

6404 **INDUCTION OF PARTIAL NUCLEOLAR SEGREGATION IN HEPATIC PARENCHYMAL CELLS BY ACTINOMYCIN D FOLLOWING INHIBITION OF RIBONUCLEIC ACID SYNTHESIS BY ETHIONINE.** *(E.)* Goldblatt, P. J. (U. Pittsburgh Sch. Med., Pa.), R. J. Sullivan and E. Farber. *Lab Invest* 20(3):283-291, 1969.

Fasted female Wistar rats (160-200 g) given an i.p. injection of ethionine develop marked inhibition of RNA synthesis, not accompanied by nucleolar segregation, for up to 4 hr after the injection. A similar degree of inhibition of RNA synthesis following actinomycin D (1.25 mg/g body weight) treatment is accompanied by a typical morphologic change, termed nucleolar segregation, within 1 hr. Since the segregation phenomenon has been asserted to be the result of inhibition of DNA-dependent RNA synthesis, rats were given ethionine (1 mg/g body weight) for 2 hr and 40 min, a time sufficient to inhibit RNA synthesis more than 90%, and were then treated with actinomycin D. Partial nucleolar segregation was seen when the animals were sacrificed 80 min after the actinomycin injection. The segregation was incomplete and resembled that produced by a lower dose of actinomycin. This modifying agent effect on nucleolar segregation was shown to precede the onset of inhibition of RNA or protein synthesis since treatment with ethionine for only 30 min prior to the actinomycin injection produced the same effect. Doubling the dose or i.v. injection of actinomycin did not produce typical segregation as seen after actinomycin alone. A difference in absorption of actinomycin following ethionine or saline injection in large volumes could not be documented. Partial segregation of nucleolar components characterized by separation of fibrils and particles can be produced with actinomycin despite prior inhibition of RNA synthesis (90%).

### 6405 INTRACELLULAR DISTRIBUTION OF LEAD IN THE LIVER AND KIDNEY OF THE RAT.

*(E.)* Castellino, N. (Inst. Gen. Pathol., U. Naples, Italy) and S. Aloj. *Brit J Industr Med* 26(2):139-143, 1969.

The distribution of lead in intracellular fractions of liver and kidney was studied in male Wistar rats (190-240 g) for 9 days after i.v. injection of 100 μg of lead ($^{210}$Pb) per rat. The radioactivity and the protein nitrogen were measured in the homogenates and in the nuclei, mitochondria, microsomes, and cell sap. Lead penetrates the cell quickly, for it was present in all fractions 1 hr after injection. During the first 72 hr the relative amounts of lead in the different fractions varied, which ruled out the possibility that all the differences could be explained by redistribution after homogenization. The distribution of the metal within the cell probably depends upon differences in the nature and the stability of bonding to intracellular structures. The binding of lead within the mitochondria seemed to be particularly stable, only 24.4% of the radioactivity being removed by washing with 0.25 M sucrose or 0.001 M ethylenediaminetetra-acetate or 0.001 M diethylenetriamino-penta-acetate in 0.25 M sucrose.

### 6406 AN ELECTRON MICROSCOPE STUDY OF THE BASEMENT MEMBRANE OF PROLIFERATED BILE DUCTULES.

*(E.)* Kajikawa, K. (Sch. Med., Kanazawa U., Japan) and S. Kakihara. *Exp Molec Path* 11(1):17-27, 1969.

An electron microscope study was made on hepatic cirrhosis of 20 male Wistar rats (150-200 g) fed a diet containing 0.06% 3′-methyl-diaminoazobenzene for 90-150 days. (Light microscopy showed that hepatic cirrhosis together with proliferation of bile ductules developed in all the rats, with considerable variation in severity within the same liver.) Special attention was given to the possible role of the fibroblast in the organization of the basement membrane of proliferated bile ductules. No basement membrane was seen where the ductular cell reaction was evident, and the dense material deposited beneath the ductules appeared to be converted into the basement membrane concurrent to collagen deposition which was most likely induced by the underlying fibroblasts. Massive accumulation of the dense material appeared to be associated with inhibited formation of collagen fibrils in the periductular regions. Presumably mature basement membrane appeared to fuse with the stromal microfibrils and collagen fibrils without distinct demarcation. What appeared to be fully developed basement membrane was associated with the ductular epithelium that had cytoplasmic structures similar to those of the normal liver. Apparently the deposits in the space between the epithelium and subjacent fibroblasts are occupied by a mixture of materials which are produced by both cells, and the epithelial cells exert some influence over polymerization of collagen and differentiation of fibroblasts in the juxtaepithelial regions, strongly suggesting that the epithelial basement membrane is elaborated by cooperation of the epithelial cells and fibroblasts. Apparently the inflammatory cells could not provide a suitable environment for the formation of the basement membrane.

### 6407 ORAL CONTRACEPTIVES: LONG-TERM USE PRODUCES FINE STRUCTURAL CHANGES IN LIVER MITOCHONDRIA.

*(E.)* Perez, V. (Fac. Med., U. Natl. Buenos Aires, Argentina), S. Gorosdisch, J. De Martire, R. Nicholson and G. Di Paola. *Science* 165(3895):805-807, 1969.

Liver biopsies from 28 women (ages 19 to 40 yr) receiving oral contraceptives from 1 to 6 months (15) or from 12 to 30 months (13), were examined by microscopy. By light microscopy, all liver specimens appeared normal. By electron microscopy, the hepatic parenchymal cells in most of the first group showed a moderate increase in the development of the smooth endoplasmic reticulum. The biliary canaliculi appeared normal and the mitochondria were regular in size and shape. In 8 of the 13 patients in the second group, the mitochondria showed striking changes which included altered shape, increased size, and the presence of paracrystalline inclusions. The remaining 5 were similar to the first group. No significant correlation between mitochondrial changes and alteration in liver function was detected.

### 6408 PARIETAL CELL HYPERPLASIA INDUCED BY THE ADMINISTRATION OF PENTAGASTRIN (ICI 50,123) TO RATS.

*(E.)* Crean, G. P. (Med. Res. Counc. Clin. Endocrinol. Res. Unit, Edinburgh, Scotland), M. W. Marshall and R. D. E. Rumsey. *Gastroenterology* 57(2):147-155, 1969.

Pentagastrin (4 mg/day for 21 days) and histamine (12 mg of base/day for 21 days) were administered in depot form to 18 male Wistar rats with chronic gastric fistulas. The administration of pentagastrin led to a 4-fold increase in acid output, and caused increases in the height of the fundic mucosa, in the average count of parietal cells per unit area of the mucosa, and in the total parietal cell population of the stomach. Histamine caused a 2-fold increase in acid secretion, but exerted no effects on the gastric mucosa. The peptic cell population was not affected by either form of treatment.

### 6409 THE CELLULAR ULTRASTRUCTURE OF HEPATOMAS INDUCED IN RATS WITH 2-ACETYLAMINOFLUORENE.

*(Rus.)* Pinchuk, V. G. (Kiev Inst. Exp. Clin. Oncol., USSR), L. A. Zotikov and B. D. Monastyrskaia. *Vop Onkol* 13(11):66-72, 1967.

Hepatomas were induced in male Wistar rats on a protein-deficient diet by giving them 5 mg/day of 2-acetylaminofluorene in fish oil p.o. for 4 months. The cellular ultrastructure of these hepatomas had features similar to hepatomas induced by various azo dyes and to rapidly growing transplanted hepatomas but was not analogous to them. Unusual structures seen in these cancer cells were ring-shaped membranes in some of the mitochondria and electron-dense lamellar bodies in the cytoplasm. The former are probably caused by changes in the mitochondrial cristae. The structure of the lamellar bodies, which resembles the cross-section of calcium-cholesterol stones, and disturbances in the production and secretion of bile in the hepatoma cells suggest that the lamellar bodies are a product of bile condensation in which calcium salts are precipitated.

## MORPHOLOGY, CELLULAR STRUCTURE AND HISTOCHEMISTRY

### 6410 HISTOCHEMICAL RESEARCHES ON THE HEPATOCYTE IN EXPERIMENTAL RE-FEEDING CONDITIONS FOLLOWING STARVATION. ON THE ACTIVITY OF SOME OXIDO-REDUCING ENZYMES. *(E.)*

Onicescu, D. (Fac. Med., Bucharest, Romania) and A. Radu. *Acta Histochem (Jena)* 33(1):1-6, 1969.

The activity of some oxido-reducing enzymes of the Krebs' cycle (succinate dehydrogenase, malate dehydrogenase, isocitrate dehydrogenase), pentose shunt pathway (G6PD and 6-phosphogluconate dehydrogenase), anaerobic glycolysis (lactate dehydrogenase, alcohol dehydrogenase, α-glycerophosphate dehydrogenase, glutamate dehydrogenase), enzymes of amino acids (tryptamine oxidase, tyramine oxidase) and NADH- and NADPH-diaphorases was studied in mouse liver under refeeding conditions after a 120 hr starvation. After an interval of markedly oscillating enzyme activity, lasting from 20 through 72 hr after normal food intake, normal metabolic activity was almost entirely restored in the hepatocyte. Alpha-glycerophosphate dehydrogenase remained depressed at least 120 hr after eating.

### 6411 THE STRUCTURAL ORGANIZATION OF HAEM SYNTHESIS IN RAT LIVER MITOCHONDRIA. *(E.)*

Jones, M. S. (Dept. Biochem., U. Bristol, England) and O. T. G. Jones. *Biochem J* 113(3):507-514, 1969.

A dual-wavelength-spectrophotometric assay for ferrochelatase has been used for the continuous assay of incorporation of metal ions ($Fe^{2+}$, $CO^{2+}$, $Zn^{2+}$) into porphyrins. Constants are given for the determination of rates of formation of protoheme and cobalt protoporphyrin, mesoheme, cobalt mesoporphyrin and zinc mesoporphyrin in the mitochondria of rat livers. For cobalt mesoporphyrin formation the $K_m$ for $Co^{2+}$ is 11 $10^{-6}$ M and that for mesoporphyrin is 5 $10^{-6}$ M. An improved method for the separation of inner and outer membranes of mitochondria was developed. Mitochondria swollen in hypo-osmotic media were contracted in hyperosmotic potassium chloride solution containing ATP and the outer membranes detached by mild ultrasonic treatment. Sucrose inhibited the ATP-induced contraction and decreased the yield of outer membranes. Ferrochelatase is associated with cytochrome oxidase, which is used as a marker for inner mitochondrial membranes. By using as substrate porphyrin dissolved in phospholipid micelles, ferrochelatase activity of intact mitochondria was shown to be latent, and to be liberated by ultrasonic treatment. No ferrochelatase was detectable in microsomes or soluble cell components.

### 6412 ARGYROPHILE AND ARGENTAFFIN REACTIONS IN INDIVIDUAL GRANULES OF ENTEROCHROMAFFIN CELLS OF THE RHESUS MONKEY WITH A DISCUSSION ON THE IDENTITY OF THE ACTIVE CELLS OF THE 5-HYDROXYTRYPTAMINE PRODUCING CELL SYSTEM OF THE GASTROINTESTINAL TRACT.

*(E.)* Singh, I. (Med. Coll., Rohtak, India). *Anat Anz* 125(1):18-23, 1969.

Enterochromaffin cells of the rhesus monkey were studied using successive staining of sections by argentaffin and argyrophile methods. The cells are found to be of 3 types: Type 'a' cells have granules that are argyrophile but not argentaffin and account for 19%. Type 'b' cells contain granules that are argyrophile as well as argentaffin (56%) while type 'c' cells contain some granules that give positive reactions with both these methods, but also contain other granules that are purely argyrophile. The presence of the cells of the third type makes it clear that no definite distinction can be made between argyrophile and argentaffin cells.

### 6413 SUBCELLULAR LOCALIZATION OF CALCIUM, MAGNESIUM AND PROTEIN IN CANINE INTESTINAL MUCOSA. *(E.)*

Cassidy, M. M. (George Washington U. Med. Ctr., Washington, D. C.), A. M. Goldner and C. S. Tidball. *Amer J Physiol* 217(3):680-685, 1969.

The subcellular distribution of calcium and magnesium in male, mongrel canine intestinal epithelium, in particular the locus of the moiety responsible for permeability regulation, was studied by a modification of standard fractionation techniques. Both control tissue and tissue treated with $Na_2H_2$ EDTA, which increased epithelial permeability, showed a distinct, characteristic, and reproducible distribution for both ions in the 6 fractions isolated; cell residue, nuclei, fluffy mitochondria, mitochondria, microsomes, and supernatant. In control tissue the specific activities (μEq of cation/mg of protein) of the 2 cations were significantly different from 1 another in most fractions, the mitochondrial and microsomal fractions having the highest values for both metals. In EDTA-treated tissue the protein distribution pattern was unaltered but the specific activity of both ions was decreased in all fractions except for the magnesium supernatant value; this finding may be interpreted as subcellular organelle involvement in cell cation homeostasis. Strikingly, the greatest reduction in both calcium and magnesium specific activity occurred in those fractions commonly believed to contain the plasma membrane components of the cells.

### 6414 HISTOCHEMICAL CHANGES PRODUCED BY NORADRENALINE IN THE CAT FOLLOWING ARREST OF THE HEPATIC LYMPH CIRCULATION. *(E.)*

Papp, M. (Budapest, Hungary) and M. Palkovits. *Rev Int Hepat* 17(7):661-668, 1967.

### 6415 ELECTRON MICROSCOPIC STUDY ON THE HEPATIC SINUSOIDAL WALL AND THE FAT-STORING CELLS IN THE NORMAL HUMAN LIVER.

*(E.)* Ito, T. (Gunma U. Sch. Med., Maebashi, Japan) and S. Shibasaki. *Arch Histol Jap* 29(2):137-192, 1968.

### 6416 DIE PATHISCHEN REAKTIONEN DES LEBERGEWEBES (THE PATHOLOGIC REACTIONS OF LIVER TISSUE). *(Ger.)*

Hubner, G. (Pathol. Inst. U. Cologne, Germany. Stuttgart, Gustav Fisher, 1968. 188 pp.

### 6417 ANATOMICAL VARIATIONS OF THE EXTRAHEPATIC BILIARY DUCTS. *(Rev.)(E.)*

Keros, P. and P. Rudan. *Med J (Belgrade)* 90(8):51-56, 1968.

### 6418 ANATOMICAL BASIS OF THE PUNCTURE SITE AND DIRECTION OF A NEEDLE IN PERCUTANEOUS TRANSHEPATIC CHOLECYSTOCHOLANGIOGRAPHY. *(Rus.)*

Levadny, P. I. (S. M. Kirov Milit. Med. Acad., Leningrad, USSR). *Vestn Khir Grekov* 99(10):24-25, 1967.

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6419 CELLULAR PROLIFERATION IN THE LIVER. *(E.)* Grisham, J. W. (Dept. Pathol., Washington U., St. Louis, Mo.). *Rec Res Cancer Res* 17:28-43, 1969.

6420 CELLULAR PROLIFERATION IN THE LIVER. *(E.)* Bucher, N. L. R. (Huntington Mem. Hosp., Harvard U., Boston, Mass.), F. L. Moolten and T. R. Schrock. *Rec Res Cancer Res* 17:43-48, 1969.

6421 NUCLEAR SIZE AND TOTAL, SOLUBLE AND INSOLUBLE, DRY MASS OF ISOLATE HEPATOCYTES OF YOUNG WHITE MICE. A MICROINTERFEROMETRIC STUDY. *(It.)* Tongiani, R. (Inst. Gen. Pathol., U. Pisa, Italy). *Sperimentale* 118(4):263-280, 1969.

6422 EXCHANGE OF MITOCHONDRIAL LECITHIN AND CEPHALIN WITH THOSE IN RAT LIVER MICROSOMES. *(E.)* Akiyama, M. (Sapporo Med. Coll., Japan) and T. Sakagami. *Biochim Biophys Acta* 187(1):105-112, 1969.

6423 THE LAMINA PROPRIA: ORPHAN OF THE GUT. [EDITORIAL] *(E.)* Brandborg, L. L. (VA Hosp., San Francisco, Calif.). *Gastroenterology* 57(2):191-193, 1969.

6424 INCORPORATION OF FATTY ACIDS INTO THE OUTER AND INNER MEMBRANES OF ISOLATED RAT LIVER MITOCHONDRIA. *(E.)* Nachbaur, J. (Fac. Med., Grenoble-Gare, France), A. Colbeau and P. M. Vignais. *Febs Letters* 3(2):121-124, 1969.

6425 LYSOSOMAL INVOLVEMENT IN LIVER CELL VACUOLATION BY HYPOXIA. *(E.)* Baccino, F. M. (Inst. Pathol., U. Torino, Italy). *Brit J Exp Path* 50(2):150-152, 1969.

6426 INITIATION OF THE DIVISION CYCLE OF RAT HEPATOCYTES FOLLOWING A SINGLE INJECTION OF THIOACETAMIDE. *(E.)* Reddy, J. (U. Kansas Med. Ctr., Kansas City), M. Chiga and D. Svoboda. *Lab Invest* 20(5):405-411, 1969.

6427 HISTOCHEMICAL STUDIES ON THE EARLY DEVELOPMENT OF THE HUMAN SMALL INTESTINE. *(E.)* Garbarsch, C. (Anat. Dept. A, U. Copenhagen, Denmark). *Acta Anat (Basel)* 72(3):357-375, 1969.

6428 AGE-RELATED ALTERATIONS IN THE STRUCTURE OF NUCLEOPROTEIN. IV. CHANGES IN THE COMPOSITION OF WHOLE HISTONE FROM RAT LIVER. *(E.)* Von Hahn, H. P. (NIH, Bethesda, Md.), J. Miller and G. L. Eichhorn. *Gerontologia Basel* 15(4/5):293-301, 1969

6429 STUDIES ON MORPHOLOGICAL PRECURSORS OF THE MOUSE HEPATOMA INDUCED WITH o-AMINOAZOTOLUENE. I. APPROACH TO THE METHODOLOGY. *(E.)* Itoh, K. (Mie Prefectural U. Sch. Med., Tsu, Japan). *Mie Med J* 18(2):107-122, 1969.

6430 THE USE OF SCANNING ELECTRON MICROSCOPY IN THE STUDY OF THE INTESTINAL VILLI. *(E.)* Toner, P. G. (Western Infirm., Glasgow, Scotland) and K. E. Carr. *J Path* 97(4):611-617, 1969.

6431 ULTRASTRUCTURAL ALTERATIONS OF THE CYTOMEMBRANES OF RAT PANCREATIC EXOCRINE CELLS INDUCED BY TREATMENT WITH 2-ACETYLAMINOFLUORENE. *(E.)* Flaks, B. (Sch. Med., Leeds U., England) and J. A. Moody. *Europ J Cancer* 5(3):231-238, 1969.

6432 STUDIES ON THE BIOSYNTHESIS OF THE DNA POLYMERASE OF RAT LIVER MITOCHONDRIA. *(E.)* Ch'ih, J. J. (Jefferson Med. Coll., Philadelphia, Pa.) and G. F. Kalf. *Arch Biochem* 133(1):38-45, 1969.

6433 THE EFFECT OF TWO SYNTHETIC STEROIDS ON THE ULTRASTRUCTURE OF THE LIVER OF *RATTUS NORVEGICUS* L. *(E.)* Hines, W. J. W. (Dept. Zoology, U. Liverpool, England). *J Pharm Pharmacol* 21(8):509-513, 1969.

6434 AN UNUSUAL ANATOMICAL VARIATION. [CASE REPORT] *(E.)* Di Giulio, V. S. (U. Illinois Coll. Med., Chicago). *Illinois Med J* 136(3):252-253, 1969.

6435 PERITONEAL COVERING OF THE LIVER AND ROOTS OF SUPERFICIAL LYMPHATIC BED IN INDIVIDUALS OF ELDERLY AND OLD AGES. *(Rus.)* Boiko, E. G. (I. M. Sechenov 1st Moscow Med. Inst., USSR). *Arkhiv Anat* 53(9):39-46, 1967.

6436 SOME ULTRASTRUCTURAL AND HISTOCHEMICAL ASPECTS OF LIPIDOSES. *(E.)* Volk, B. W. (Isaac Albert Res. Inst. Jewish Chronic Dis. Hosp., Brooklyn, N. Y.), B. J. Wallace and S. M. Aronson. *Path Europ* 3(2/3):200-217, 1968.

6437 THE EFFECT OF THE TIME OF MYELOSAN ADMINISTRATION ON THE DIURNAL MITOTIC RHYTHM OF THE EPITHELIUM OF THE SMALL INTESTINE IN RATS. *(Rus.)* Gololobova, M. T. (Inst. Exp. Biol., Acad. Med. Sci. USSR, Moscow). *Biull Eksp Biol Med* 65(6):87-90, 1968.

6438 EFFECTS OF CUPRIC ION AND DIGITONIN *IN VITRO* ON ERYTHROCYTES AND LIVER MITOCHONDRIA FROM ESSENTIAL FATTY-ACID DEFICIENT RATS. *(E.)* Trojan, L. E. (Inst. Nutrit. Food Technol., Ohio State U., Columbus) and R. M. Johnson. *J Nutr* 94(2):369-375, 1968.

6439 THE EFFECT OF INTENSE INTRAGASTRIC HYPOTHERMIA ON THE STOMACH WALL. *(Fr.)* Alivisatos, C. N. (Athens, Greece), A. N. Romanos, A. N. Georgakakis, A. D. Cassioumis and D. N. Pitsinis. *Bull Soc Int Chir* 27(6):581-587,.1968.

## MORPHOLOGY, CELLULAR STRUCTURE AND HISTOCHEMISTRY

6440 FUNCTIONAL AND MORPHOLOGICAL CHANGES IN THE LIVER WITH RESPECT TO AGE. *(Rus.)* Ivanova-Neznamova, A. Iu. (I. M. Sechenov 1st Moscow Med. Inst., USSR), V. B. Zolotarevskii and V. I. Polianskii. *Ter Arkh* 40(5):42-48, 1968.

6441 SOME EFFECTS OF PROLONGED TREATMENT WITH ATROPINE ON THE STOMACH WALL OF THE RAT (A BIOCHEMICAL-PHARMACOLOGICAL APPROACH OF THE EFFECTS OF VAGAL EXCLUSION–VAGOTOMY AND ATROPINE TREATMENT–ON CELLULAR-MOLECULAR LEVEL). *(E.)* Mózsik, G. (U. Med. Sch., Pécs, Hungary), B. Kiss, T. Jávor and M. Krausz. *Europ J Pharmacol* 7(1):66-72, 1969.

6442 MORPHOLOGY OF THE AUERBACH MYENTERIC PLEXUS OF THE SMALL INTESTINE IN DOGS. *(Fr.)* Michail, S. (Fac. Vet. Med., U., Thessaloniki, Greece) and A. Karamanlidis. *Acta Anat Basel* 67(3):424-436, 1967.

6443 THE GROWTH OF THE MICROBIAL AGENTS OF ACUTE INTESTINAL INFECTIONS IN TISSUE CULTURES. I. COMPARATIVE DATA ON THE INTERACTION BETWEEN TISSUE CULTURE AND SHIGELLA, SALMONELLA AND *ESCHERICHIA COLI*. *(Rus.)* Arbuzova, V. A. *Tr Leningr Inst Epidem Microbiol Paster* 33:30-43, 1968.

6444 FIMBRIAE ANTIGENS OF SHIGELLA AND ESCHERICHIA. II. A COMPARISON OF THE FIMBIRAL PHASES OF SHIGELLA AND ESCHERICHIA. *(Rus.)* Grinber, L. D. *Tr Leningr Inst Epidem Microbiol Paster* 33:311-319, 1968.

6445 A COMPARATIVE ANALYSIS OF BIOLOGICAL PROPERTIES OF DIFFERENT ENTEROPATHOGENIC AND NON-ENTEROPATHOGENIC *ESCHERICHIA COLI* IN EXPERIMENTS OF INTRANASAL INFECTIONS IN WHITE MICE. *(Rus.)* Polotskii, Iu. Ie. (Inst. Exp. Med., Acad. Med. Sci. USSR, Leningrad), V. A. Arbuzova and B. M. Ariel. *Tr Leningr Inst Epidem Microbiol Paster* 33:17-29, 1968.

6446 PROBLEMS OF *ESCHERICHIA COLI* ENTERITIS IMMUNOLOGY IN INFANTS. III. THE PRESENCE IN MOTHER'S MILK OF ANTIBODIES TO PATHOGENIC AND NONPATHOGENIC GRAM-NEGATIVE BACTERIA. *(Rus.)* Gennad'ieva, T. Ia. and L. B. Khazenson. *Tr Leningr Inst Epidem Microbiol Paster* 33:153-159, 1968.

6447 REACTIVE CHANGES IN LIVER TISSUE IN ISO- AND HOMOTRANSPLANTATION IN MICE. *(Rus.)* Ponomareva, T. V. (Leningrad Sanit.-Hyg. Med. Inst., USSR). *Arkh Anat* 54(6):12-19, 1968.

6448 FIMBRIAE ANTIGENS OF ENTEROPATHOGENIC *ESCHERICHIA COLI*. *(Rus.)* Gordon, M. A. *Tr Leningr Inst Epidem Microbiol Paster* 33:210-213, 1968.

6449 ULTRASTRUCTURAL CHANGES OF THE PARIETAL CELL IN THE FERRET GASTRIC MUCOSA INDUCED BY PYLORUS LIGATION AND GLUCOCORTICOID ADMINISTRATION. *(E.)* Pfeiffer, C. J. (Ames Res. Ctr., Moffett Field, Calif.) and R. J. Stephens. *J Ultrastruct Res* 21(5/6):524-537, 1967.

6450 HISTOLOGICAL STUDIES OF THE GASTROINTESTINAL TRACT OF THE RAT AFTER POISONING WITH TUBERS OF *GLORIOSA SUPERBA*. *(E.)* Jayatilaka, A. D. P. (Dept. Anat., U. Ceylon, Peradeniya), K. Balasubramaniam, R. Dunuwille and S. W. Bibile. *Ceylon J Med Sci* 16(1/2):11-17, 1967.

6451 ADVENTITIOUS CONNECTIVE TISSUE CELLS IN THE SPACE OF DISSE AND THEIR RELATION TO FIBRE FORMATION. *(E.)* Schnack, H. (1st Med. U. Clin., Vienna, Austria), L. Stockinger and F. Wewalka. *Rev Int Hepat* 17(8):855-860, 1967.

6452 THE LIPID COMPONENTS OF THE SMOOTH-SURFACED MEMBRANE-BOUNDED VESICLES OF THE COLUMNAR CELLS OF THE RAT INTESTINAL EPITHELIUM DURING FAT ABSORPTION. *(E.)* Sjöstrand, F. S. (Dept. Physiol. Chem., U. Lund, Sweden) and B. Borgström. *J Ultrastruct Res* 20(1/2):140-160, 1967.

6453 ULTRASTRUCTURAL CHANGES IN THE MICROVILLOUS PLASMA MEMBRANE DURING LIPID ABSORPTION: AN *IN VITRO* STUDY AT 0°C. *(E.)* Dermer, G. B. (Dept. Zool., U. California, Los Angeles). *J Ultrastruct Res* 21(1/2):1-8, 1967.

6454 SUSCEPTIBILITY OF CELL CULTURES FROM VARIOUS MAMMALIAN TISSUES TO THE INFECTION BY SHIGELLA. *(E.)* Ogawa, J. (Natl. Inst. Hlth., Tokyo, Japan), H. Yoshikura, A. Nakamura and R. Nakaya. *Jap J Med Sci Biol* 20(4):329-339, 1967.

6455 VIRULENCE AND EPITHELIAL CELL INVASIVENESS OF DYSENTERY BACILLI. *(E.)* Ogawa, H. (Natl. Inst. Hlth., Tokyo, Japan), A. Nakamura, R. Nakaya, K. Mise, S. Honjo, M. Takasaka, T. Fujiwara and K. Imaizumi. *Jap J Med Sci Biol* 20(4):315-328, 1967.

6456 FEATURES OF THE TOPOGRAPHY OF PANCREATIC-DUODENAL VEINS. *(Rus.)* Aganezov, S. A. (I. P. Pavlov 1st Leningrad Med. Inst., USSR). *Arkhiv Anat* 53(9):54-59, 1967.

6457 STABILIZING EFFECT OF RIBONUCLEASE INHIBITOR ON STRUCTURE OF POLYSOMES AND SOME PROPERTIES OF FOUR CLASSES OF RIBOSOMAL PARTICLES IN RAT LIVER CYTOPLASM. *(E.)* Sugano, H. (Fac. Sci., Niigata U., Japan), I. Watanabe and K. Ogata. *J Biochem (Tokyo)* 61(6):778-786, 1967.

6458 INDIVIDUAL ANATOMIC DIFFERENCES IN THE GREATER OMENTUM IN YOUNGER CHILDREN. *(Rus.)* Shifrin, V. I. (Leningrad Pediat. Med. Inst., USSR). *Arkh Anat* 53(11):65-72, 1967.

## MORPHOLOGY, CELLULAR STRUCTURE AND HISTOCHEMISTRY

6459 **PROLIFERATION OF HEPATIC CELLS IN FOCUS OF ASEPTIC INFLAMMATION UNDER VARIOUS CONDITIONS OF X-RAY IRRADIATION.** *(Rus.)* Bulgak, V. I. (Inst. Exp. Med., Leningrad, USSR). *Arkh Anat* 54(5):55-61, 1968.

6460 **SENILITY CHANGES IN INTRAORGAN LYMPHATIC BED OF THE HUMAN STOMACH.** *(Rus.)* Balashev, V. N. (Leningrad Sanit. Hyg., Med. Inst., USSR). *Arkh Anat* 55(11):11-16, 1968.

6461 **SEGMENTAL STRUCTURE OF THE LIVER.** *(Rus.)* Volod'ko, V. P. (I. M. Sechenov 1st Moscow Med. Inst., USSR). *Arkh Anat* 55(11):16-24, 1968.

6462 **ULTRASTRUCTURAL STUDIES ON HUMAN DUODENAL GLANDS.** *(It.)* Riva, A. (Inst. Norm. Human Anat., U. Cagliari, Italy) and D. Zaccheo. *Sperimentale* 118(4):281-311, 1968.

6463 **GROWTH PATTERN OF POSTNATALLY DEVELOPING RAT PAROTID GLAND.** *(E.)* Schneyer, C. A. (U. Alabama Med. Ctr., Birmingham) and H. D. Hall. *Proc Soc Exp Biol Med* 130(2):603-607, 1969.

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6776,6777,6829,6887,6906,6915,6929,6962,6992,7066,7075,7078,
7171,7184,7223,7233,7242,7244,7249,7255,7290,7333,7363,7393,
7425,7427,7428,7460,7487,7501,7528,7579,7607,7643,7663,7670,
7672,7673,7675,7676,7678,7683,7686,7687,7688,7689,7690,7701

## ABSORPTION-EXCRETION

**6464 THE CHELATION OF IRON DURING INTESTINAL ABSORPTION.** *(E.)* Jacobs, A. (Cardiff Royal Infirm., Wales), M. D. Kaye and D. Trevett. *J Lab Clin Med* 74(2):212-217, 1969.

Subjects for this study were grouped as follows: 1) 15 healthy adults with mean hemoglobin concentration (HC) of 16.1 g/100 ml, 2) 12 healthy adults with mean HC of 15.3, 3) 15 patients with untreated iron deficiency anemia (mean HC 7.6), 4) 4 patients with latent iron deficiency (sideropenia), and 5) 7 patients with anemias of varied etiology. I.v. desferrioxamine given during the early phase of absorption of a 3 μg oral dose of Fe as $^{59}$Fe-labelled ferric citrate resulted in the appearance of radioactivity in the urine. Iron in transit across the intestinal epithelium appears to be available for chelation, and the amount bound as ferrioxamine is greater in some anemic patients than in normal persons. Normal persons (with i.v. desferrioxamine) showed a considerable increase in excretion. The amount of iron excreted was still greater in the iron-deficient patients and in those with anemia not due to iron deficiency. There was a clear relationship between iron excretion and hemoglobin concentration. Apparently iron pooled in the small intestinal mucosa is present in a chelatable form before it binds to transferrin and the iron probably is transported across the mucosa mainly in a metabolically active and easily chelatable form of small molecular weight. Urinary excretion of $^{59}$Fe-ferrioxamine is greater in cases of moderate anemia than in those of severe anemia, and this is consistent with impaired renal handling of ferrioxamine at low hemoglobin levels.

**6465 INTESTINAL ABSORPTION OF COBAMIDE COENZYME IN RELATION TO STRUCTURAL INTEGRITY AND INTRINSIC FACTOR.** *(E.)* Okuda, K. (Kurume U. Sch. Med., Japan), K. Yashima and M. Takamatsu. *J Lab Clin Med* 74(2):218-228, 1969.

Dimethylbenzimidazolyl cobamide coenzyme (DBCC), $^{57}$Co-labeled; as well as DBCC, 8-$^{14}$C (5′-deoxyadenosine)-labeled; were used in adult Wistar rats to study structural stability of this form of B$_{12}$ coenzyme in the intestine, during absorption, and in tissues. Absorption of $^{14}$C labeled DBCC was slow and quantitatively similar to that of DBCC documented. In contrast, $^{14}$C of photolyzed DBCC was absorbed much faster and to a greater extent. Three hr after oral administration almost 80% of $^{14}$C of DBCC was still in the intestinal content while 80% of $^{14}$C of photolyzed DBCC had already been absorbed. The label of DBCC-$^{14}$C, after binding by intrinsic factor concentrate (IFC), was not rendered dialyzable by photolysis, which suggests participation of the upper ligand in the binding. IFC-DBCC complex was quite resistant to extreme (2.0-12.9) pH levels as has been reported with cyanocobalamin. Double tracer studies, comparing tissue concentrations of $^{14}$C and $^{57}$Co indicated that $^{14}$C containing moiety of DBCC is readily detached from the cobalamin portion following parenteral administration, but much more slowly following oral administration. It was also shown that DBCC is stable in blood and is filtered through glomeruli intact. Probably DBCC, the major native form of B$_{12}$, is absorbed in a large part as such, probably under the protection of intrinsic factor.

**6466 25-HYDROXYCHOLECALCIFEROL: DIRECT EFFECT ON CALCIUM TRANSPORT.** *(E.)* Olson, E. B. (Dept. Biochem., U. Wisconsin, Madison) and H. F. De Luca. *Science* 165(3891):405-407, 1969.

The perfused small intestine from a vitamin D deficient male, albino, 20 day old rat exhibited about one-half the calcium transport of the intestine from a similar rat given vitamin D. These levels of calcium transport could be maintained for at least 4 hr. Addition of 2.5 μg of 25-hydroxycholecalciferol to the vitamin D deficient intestine via the arterial blood perfusate induced a rise in calcium transport to +D levels within 2 hr. However, 250 μg of vitamin D$_3$ given in the same manner had no effect on the calcium transport level over a 4-hr period. 25-Hydroxycholecalciferol seems to be the metabolically active form of vitamin D$_3$.

**6467 CHRONIC EXPOSURE TO ZINC OF FURNACE OPERATORS IN A BRASS FOUNDRY.** *(E.)* Hamdi, E. A. (Dept. Indust. Med., Alexandria U., Egypt). *Brit J Industr Med* 26(2):126-134, 1969.

Twelve furnace operators with chronic exposure to zinc oxide fumes in a brass foundry and 10 normal nonexposed control subjects were studied. Simultaneous determinations of zinc concentrations in the plasma, blood corpuscles, whole blood, and urine were made for each worker and control subject, and in the basal fasting gastric juice and in the gastric secretion ½ hr and 1 hr after gastric stimulation by alcohol in 8 workers and 7 controls. The workers had a statistically significant increase of zinc concentration in the blood corpuscles, whole blood, and basal fasting gastric juice compared with the control subjects. Urinary zinc excretion was slightly increased in the exposed workers. The increase in plasma zinc in workers was not statistically significant. Stomach aspiration after alcohol showed a depression of the mean zinc concentration in the gastric secretion after ½ hr with a subsequent increase to approximately the fasting level after 1 hr in both the normal subjects and the workers. Mean zinc concentrations in the gastric juice ½ hr and 1 hr after stomach stimulation were higher in the workers, but the increase was not statistically significant. The zinc absorbed by these workers is probably rapidly eliminated from the plasma to be excreted through the gastrointestinal and urinary tracts; excess zinc is stored in the blood corpuscles. The increased zinc concentration in the gastric secretion of these workers might account, in part, for the high incidence of gastric complaints among them.

**6468 EFFECT OF HEPATIC TRANSIT OF GASTRIN, PENTAGASTRIN AND HISTAMINE MEASURED BY GASTRIC SECRETION AND BY ASSAY OF HEPATIC VEIN BLOOD.** *(E.)* Thompson, J. C. (Harbor Gen. Hosp., Torrance, Calif.), D. D. Reeder, W. D. Davidson, A. C. Charters, W. L. Brückner, C. A. E. Lemmi and J. H. Miller. *Ann Surg* 170(3):493-503, 1969.

The result of liver passage on histamine, gastrin and pentagastrin levels and their ability to increase gastric secretions was studied in 14 adult mongrel dogs (20-25 kg) and compared with the results obtained by injecting the same substances in the inferior vena cava. Portal injection of histamine (24 μg/kg/hr) and pentagastrin (5 μg/kg/hr) resulted in a > 70% loss of potency in stimulating gastric acid secretion and a > 90% measured loss of each substance (comparing concentrations in the infusate, using inulin as the standard). Portal injection of synthetic human gastrin (1.25 μg/kg/hr) in the dog caused insignificant changes in acid output from gastric fistulas and statistically significant decreases (38%, 45%, and 48%) in Heidenhain pouch acid output. The mean measured loss of synthetic human gastric across the liver was 46%. Gastrin, as well as histamine and pentagastrin, is partially inactivated on liver transit. Gastrin may therefore be involved in a minor role in gastric hypersecretion after portacaval shunting.

### 6469 FAILURE OF INTRAVENOUS ASPIRIN TO INCREASE GASTROINTESTINAL BLOOD LOSS.

*(E.)* Cooke, A. R. (Royal Prince Alfred Hosp., Camperdown, Australia) and K. Goulston. *Brit Med J* 3(5666): 330-332, 1969.

Studies of the effect of i.v. sodium acetylsalicylate (aspirin) on gastrointestinal blood loss with $^{51}$Cr-labelled red cells were made on 15 healthy male volunteers. After a control period of 5 days 1 g of sodium acetylsalicylate was infused over a period of 100 min twice daily for 3 days. Fecal blood loss was not increased. In a further 6 subjects 3 g of sodium acetylsalicylate was infused over a period of 120 min. No salicylate or acetylsalicylate was detected in saliva or gastric washings from these 6 subjects. Gastrointestinal blood loss induced by aspirin may be explained by a local effect on mucosa and not by any systemic effect.

### 6470 THE UPTAKE AND TRANSPORT OF EXOGENOUS PROTEINS IN MOUSE LIVER. ULTRASTRUCTURAL CYTOCHEMICAL STUDIES WITH PEROXIDASE TRACERS.

*(E.)* Graham, R. C. Jr. (Dept. Med., Case Western Reserve U., Cleveland, Ohio), S. Limpert and R. W. Kellermeyer. *Lab Invest* 20(3):298-304, 1969.

Horseradish peroxidase (HRPO) and bovine lactoperoxidase (LPO) were used as cytochemical protein tracers in a study of the morphological aspects of protein uptake and transport in mouse liver. Pinocytotic uptake of LPO by parenchymal cells was 2 to 5 times more rapid than that of HRPO, probably because of the greater molecular weight and the higher isoelectric point of the former. The 2 proteins were otherwise handled similarly. Large vacuoles formed, at least in part by fusion of pinocytotic vesicles. Eventually, these vacuoles were seen throughout the cell, especially around the bile canaliculi. Some peroxidase entered the bile canaliculi, probably by way of the pericanalicular vacuoles. Uptake of both peroxidases was prominent in Kupffer and endothelial cells.

### 6471 VITAMIN $B_{12}$ ABSORPTION IN DOGS WITH CHRONIC ISOLATED INTESTINAL LOOPS.

*(E.)* Taylor, R. M. (Dept. Med., U. Manitoba, Winnipeg, Canada), J. A. Hildes and J. F. Lind. *Canad J Physiol Pharmacol* 47(6):497-504, 1969.

A method using the detection of radioactive vitamin $B_{12}$ in plasma was used to investigate the mechanism of vitamin $B_{12}$ absorption in 2 adult mongrel dogs with isolated Thiry-Vella loops of small intestine, either ileum or jejunum. An animal with a Thiry-Vella loop of the entire ileum failed to absorb orally administered vitamin $B_{12}$, but did absorb the vitamin from the isolated ileal loop when it was given with intrinsic factor, but not when given without. Attempts to restore absorption of orally administered vitamin $B_{12}$ by the administration of ileal juice (either resting or stimulated), by the administration of an extract of ileal mucosa, or by the simultaneous absorption of nonradioactive vitamin $B_{12}$ from the isolated loop, all failed. In contrast, the animal with a jejunal Thiry-Vella loop absorbed vitamin $B_{12}$ given orally but not when administered into the isolated jejunum alone, in combination with intrinsic factor, or with intrinsic factor and ileal juice. Vitamin $B_{12}$ absorption is probably limited to the ileum, but the ileum apparently does not liberate, either locally or systemically, a vitamin $B_{12}$ absorption factor. Thus the hypothesis that ileal mucosa contains a special cellular mechanism for vitamin $B_{12}$ absorption gains indirect support from these results.

### 6472 THE REDUCTION OF CYSTINE DURING ITS TRANSPORT INTO RAT JEJUNAL EVERTED SEGMENTS AND SACS.

*(E.)* Crawhall, J. C. (St. Bartholomew's Hosp., London, England) and M. G. Davis. *Biochem J* 112(5):571-578, 1969.

Everted segments and sacs of Sprague-Dawley rat jejunum were incubated in buffer containing $^{35}$S-cystine, and the uptake and reduction of cystine in segments and sacs were compared. Interpretation of results regarding cystine transport is complicated because cystine is reduced to cysteine after entering the tissue. Using segments, and under anaerobic conditions, at 0.025 mM $^{35}$S-cystine, an isotope distribution ratio of only 1.5 was achieved after 60 min of incubation. Using sacs, at 60 min equilibrium is reached between the influx of substrate into the tissue and efflux of substrate both into the medium and the sac lumen. Anaerobiosis prevented a concentration gradient being obtained between the medium and the tissue, but had little effect on the extent of reduction to cysteine in the tissue and sac lumen. Reduction to cysteine was virtually complete intra-cellularly and in the sac lumen. The amino acid leaves the serosal surface of the everted gut sac in the form of cysteine. This process if presumably also taking place in everted gut segments, but in this case the cysteine returns to the incubation medium. Extensive reduction in the medium occurred only when segments were incubated. The inhibition of cystine transport by lysine appears to be competitive. Therefore, cystine is transported by an active process into rat jejunum, where it is present almost entirely in the reduced form; and the efflux of cysteine occurs through the serosal surface.

### 6473 CLINICAL AND EXPERIMENTAL STUDIES ON HEPATIC BILIRUBIN EXCRETION.

*(E.)* Nagasawa, S. (Nagoya City U. Med. Sch., Japan). *Nagoya Med J* 14(3):193-221, 1968.

Unconjugated bilirubin in considerable amounts and Pigments I and II were found in the bile of normal humans and rats. The ratio of unconjugated/total bilirubin in bile of normal rats was about 20% which ratio increased with liver damage (hepatitis, 10 patients, cirrhosis 8, cholecystitis 5). The mechanism of the secretion of unconjugated bilirubin in bile suggested an active process. The presence of unconjugated and conjugated bilirubin in hepatic and Kupffer cells of 12 human cholestatic livers was demonstrated by using a new 2-4 dichloraniline technique for the differential staining of conjugated and total bilirubin. Some of the pigment granules and some intracellular bile thrombi in cholestatic liver tissue were found to contain unconjugated bilirubin in addition to conjugated bilirubin. Normal human as well as female rabbit sera contained only minimal total bilirubin. Total bilirubin excretion in bile is highest in normal rat and normal man, and Pigment II excretion is highest, and free bilirubin excretion lowest in normal rat; while Pigment II is as high as Pigment I in normal B-bile, showing an ability of the gallbladder in concentrating free bilirubin and Pigment II. Sera of the jaundiced contains increased total bilirubin, and the 3 bilirubin fractions show a tendency to an increase parallel to the total bilirubin increase. Bile of the jaundiced rat decreases its bile volume, though total bilirubin increased in concentration; but total bilirubin excretion is unchanged in acute liver damage and decreases in chronic liver damage. The jaundiced hepatitis patient may have a disturbance in the concentrating ability of the gallbladder. Glucocorticoids affect the serum bilirubin level favorably and bile bilirubin excretion rather less favorably. Although glucocorticoids have possible choleretic effects (e.g. increased bile volume and bilirubin concentration), a metabolic mechanism other than hepatobiliary bilirubin metabolism may be present. Ursodesoxycholic acid, when given s.c., had a choleretic or cholagogic effect. The loading of bilirubin s.c. is followed by a rise in levels of Pigment I but by only a slight rise of free bilirubin in the bile of rats. Hemolyzed blood loading behaved like bilirubin loading; however bilirubin excretion was delayed compared with the bilirubin loading.

**6474 KINETICS OF BILIARY EXCRETION OF DYES. II. CRITICAL STUDY OF THE VOLUMETRIC MEASUREMENT OF THE BILIARY DUCTS WITH OBSTRUCTED CHOLERESIS.** *(Fr.)* Sicot, C. (Beaujon Hosp., Clichy, France), A. Richard and J. P. Benhamou. *Rev Franc Etud Clin Biol* 13(4):392-395, 1968.

After laparotomy,the cystic duct of rabbits was tied and a catheter inserted at the end of the common bile duct. The average values for the volume of the bile ducts with obstructed choleresis were: after i.v. injection of indocyanine green (ICG-0.4 mg/kg) 996.4 μl/kg; with BSP (4 mg/kg) 1111.3 μl/kg; and with Rose Bengal $^{131}$I-0.001 mg/kg) 1424 μl/kg. The differences between the average volumes of bile ducts with obstructed and free choleresis were: with ICG 707.7 μl/kg; with BSP 687.8 μl/kg; with Rose Bengal $^{131}$I-764.8 μl/kg. The average values of the bile ducts with obstructed choleresis after 25 min clamping of the common bile duct, calculated after injecting ICG (1 mg/kg), 20 min and 30 sec after release, were resp.: 65 μl/kg and 1215.7 μl/kg. These differences are due to the fact that clamping of the common bile duct does not stop the progression of the bile in the bile ducts. Consequently, the method presented cannot be considered to be reliable.

**6475 STUDIES ON THE EFFECT OF VITAMIN D ON CALCIUM ABSORPTION AND TRANSPORT.** *(E.)* Hashim, G. (Inst. Nutrit. Sci., Columbia U., New York, N. Y.) and I. Clark. *Biochem J* 112(3):275-283, 1969.

Mucosal cells of the small intestine obtained from Holtzman rats deprived of vitamin D or given excessive amounts (10,000 IU/100 g body weight/day) of the vitamin, accumulated significantly more calcium than did cells from control animals. Although the uptake of $^{45}$Ca at 38C rose with decreasing calcium concentration, greater cell stability was thought to be more desirable and 10 mM-calcium was used. Calcium uptake was greatest at 7.4 pH and negligible at 6.1 pH; and considerably less when incubated at 0C than at 38C (at 7.4 pH). Calcium uptake by mucosal cells from rats treated with large oral doses of vitamin D and from vitamin D-deficient rats was higher than that of control cells. Mucosal cells from vitamin D-deprived rats lost essentially no calcium, whereas those from hypervitaminotic D animals tended to lose more calcium than did cells from control animals. Studies *in vivo* showed that the transfer of $^{45}$Ca from the intestine to the blood was delayed in vitamin D deficiency, but was accelerated in hypervitaminosis D. Vitamin D is therefore probably involved in the release of calcium rather than in its uptake by mucosal cells. The uptake of calcium by intestinal mucosal cells at 0C is apparently primarily passive, whereas at 38C uptake and release are effected by an active process that depends on energy derived from glycolytic activity.

**6476 STUDY OF CALCIUM ABSORPTION IN MAN: A KINETIC ANALYSIS AND PHYSIOLOGIC MODEL.** *(E.)* Birge, S. J. (Natl. Inst. Hlth., Bethesda, Md.), W. A. Peck, M. Berman and G. D. Whedon. *J Clin Invest* 48(9):1705-1713, 1969.

A physical model of calcium absorption was developed from analysis of data obtained from 23 subjects, including 13 patient having a variety of abnormalities of calcium metabolism (hypoparathyroidism 3, hyperparathyroidism 3, idiopathic hypercalciuria 4, and nontropical sprue 2). The model was tested and found consistent in all subjects studied. This technique provides a quantitative description of the rate of entry of an oral dose of $^{47}$Ca into the circulation as a function of time by analysis of serum or forearm radioactivity in response to i.v. or p.o. administration of $^{47}$Ca. The kinetics are characterized by an initial delay phase of 15-20 min, by a maximal rate of absorption at 40-60 min after ingestion, and by 95% completion of the absorption within 2½ hr. Partial identification of the physiological counterparts of the model was possible by introduction of the isotope at various levels of the gut. Although the region of the duodenum was found to have the greatest rate of absorption per U length in normal subjects, it was least responsibe to stimulation by parathyroid hormone and suppression by calcium loading. Furthermore, the response of the gut to parathyroid hormone was delayed, whereas the suppression of absorption by i.v. or p.o. calcium loading was rapid and dramatic.

**6477 A CROSS-INHIBITION OF BASIC AMINO ACID TRANSPORT BY NEUTRAL AMINO ACIDS.** *(E.)* Reiser, S. (Indiana U. Sch. Med., Indianapolis) and P. A. Christiansen. *Biochim Biophys Acta* 183(3):611-624, 1969.

At a concentration of 12.5 mM the neutral amino acids inhibited the transport of 1 mM lysine by everted small intestinal sacs from male, Wistar rats (180-260 g) in a manner related to their affinity for the neutral amino acid carrier. Leucine and methionine induced a large net flux of lysine from the tissue to the mucosal medium at the lysine steady state while sugars did not, indicating an interaction of the amino acids at the carrier level rather than one due to energy limitations. Leucine and methionine produced a large competitive stimulation of lysine transport, while arginine under the same conditions was inhibitory. This result implies independent carrier systems for the neutral and basic acids. Valine was found to be a partial competitive inhibitor of lysine transport in contrast to arginine which produced total inhibition. The 10-15% inhibition of valine transport produced by lysine at concentrations between 25 and 100 mM was not competitive. The findings that valine and lysine have the same distribution of transport activity along the intestine and that valine produced a constant inhibition of lysine transport as a function of intestinal location suggests that valine and lysine are not transported by different carrier systems and is consistent with transport by spatially related carrier systems. These results are best explained by an allosteric modification of the basic amino acid site caused by the binding of a neutral amino acid to a structurally specific but closely associated site on a single or polyfunctional carrier.

6478 **BILE SALT REGULATION OF FATTY ACID ABSORPTION AND ESTERIFICATION IN RAT EVERTED JEJUNAL SACS *IN VITRO* AND INTO THORACIC DUCT LYMPH *IN VIVO*.** *(E.)* Clark, M. L. (Med. Svc. U. Pennsylvania, Philadelphia), H. C. Lanz and J. R. Senior. *J Clin Invest* 48(9):1587-1599, 1969.

Studies were to determine whether fat malabsorption in the blind loop syndrome is due to the presence of free bile acids or to a deficiency of conjugated bile salts, produced by bacterial degradation of normal bile salts and to learn of the mechanisms by which bile salts regulate fat absorption. In the everted gut sac of the female rat *in vitro*, conjugated bile salts were necessary for maximal rates of fatty acid esterification to triglycerides, whereas free bile acids inhibited this process even in the presence of physiologically normal or higher concentrations of conjugated bile salts. In contrast, *in vivo* the addition of similar or higher concentrations of free bile acids to infusions of fatty acids in taurocholate micellar solutions produced no reduction in the amount of fatty acid absorbed into lymph or the amount of fatty acid esterified into lymph triglyceride. Both *in vitro* and *in vivo*, reduction in the conjugated bile salt concentration reduced both the rate of fatty acid uptake by the intestine and the esterification into triglycerides. The steatorrhea of the blind loop syndrome or other conditions in which upper intestinal stasis allows bacterial proliferation is not due to presence of increased gut luminal concentrations of free bile acids, but rather is a consequence of lowered concentrations of conjugated bile salts.

6479 **ALTERATIONS OF $^{22}$Na DISTRIBUTION IN ILEAL SMOOTH MUSCLE.** *(E.)* Weiss, G. B. (Med. Coll. Virginia, Richmond). *Amer J Physiol* 217(3):828-834, 1969.

$^{22}$Na distribution and movements were examined in longitudinal smooth muscle isolated from guinea pig ileum. Alterations in $^{22}$Na distribution were induced by rapid dissection, temperature changes, iodoacetic acid (IAA), and ouabain. The total tissue $^{22}$Na space at 25C in muscles equilibrated at least 2 hr prior to $^{22}$Na exposure was approximately 37 ml/100 g wet wt. $^{22}$Na spaces were not affected by raising the bath temperature to 37C, but were increased in rapidly dissected muscles by lowering the temperature to 0C and by addition of IAA (3 mM) or ouabain (50 μM). Efflux of $^{22}$Na was observed as 2 components with half-times of about 1.0 and 4.4 min. The $^{22}$Na fast component measured in equilibrated muscle was smaller than the extracellular $^{14}$C-sucrose space; this may result from loss of superficially bound $^{22}$Na as part of the slower component and from intracompartmental $^{22}$Na movements during the washout. Most of the $^{22}$Na is apparently excluded from the intracellular compartment in equilibrated muscle and does not readily exchange with a major portion of cellular sodium. However, uptake of $^{22}$Na is increased transiently by rapid dissection, and extrusion of $^{22}$Na is decreased by ouabain.

6480 **ABSORPTION OF CALCIUM MEASURED BY INTUBATION AND PERFUSION OF THE INTACT HUMAN SMALL INTESTINE.** *(E.)* Wensel, R. H. (U. Washington Sch. Med., Seattle), C. Rich, A. C. Brown and W. Volwiler. *J Clin Invest* 48(9):1768-1775, 1969.

Absorption of calcium was measured by direct intubation and perfusion of the small intestine in 10 volunteer normal adult subjects, 2 adults with celiac-sprue, and 1 with a parathyroid adenoma. A total of 60 studies were completed using 1 of 2 different levels, duodenojejunum or ileum. Solutions containing stable calcium, radiocalcium$^{47}$, and a nonabsorbable dilution-concentration marker, polyethylene glycol, were infused at a uniform rate via the proximal lumen of a triple-lumen polyvinyl tube. The mixed intraluminal contents were continuously sampled by siphonage from 2 distal sites, 10 and 60 cm below the point of infusion. Unidirectional flux rates, lumen to blood and blood to lumen, and net absorption of calcium for the 50 cm segment of small intestine between the 2 collection sites were calculated from the measured changes in concentration of stable calcium, calcium-47, and polyethylene glycol. Flux of calcium from lumen to blood in the duodenojejunum of normal subjects was appreciable even when the concentration of calcium in the perfusate was below that of extracellular fluid and, as the intraluminal concentration of calcium was increased through a range of 0.5-3.5 μmoles/ml, was positively correlated, ranging from 1.9 to 7.0 μmoles/min per 50 cm. Repeated studies of individual subjects demonstrated a consistent pattern of absorptive efficiency in each, but significant variability from person to person. Flux from lumen to blood in the ileal segment occurred at a much lower rate than that of the proximal intestine, and there was not a significant dependence upon intraluminal calcium concentration. The opposite flux, from blood to lumen, was low both in the duodenojejunum and ileum (average 0.764 moles/min per 50 cm) and was independent of the intraluminal calcium concentration. Unidirectional flux, lumen to blood, from the duodenojejunum was not altered by parathyroid extract administered at the time of infusion, but was accelerated in the subject with a parathyroid adenoma and markedly reduced in the 2 subjects with celiac-sprue.

6481 **EVALUATION OF COMPONENTS OF TRANSPORT OF SUGARS BY DOG JEJUNUM *IN VIVO*.** *(E.)* Levitt, D. G. (Dept. Physiol., U. Minnesota, Minneapolis), A. A. Hakim and N. Lifson. *Amer J Physiol* 217(3):777-783, 1969.

## ABSORPTION-EXCRETION

The diffusive, convective, and active transport components of absorption and secretion are described in terms of a model in which the 3 components are combined as linear independent terms, each with 1 characterizing constant. The components for D-xylose, L-arabinose, and (approximately) for D-glucose were determined in the dog jejunum *in vivo* under a number of different conditions of absorption and secretion. The results were in sufficient agreement with the model and the relative magnitudes of the 3 components. Under normal conditions, for absorption of xylose from Ringer solution, the convective and active transport components are about equal in magnitude and about twice the diffusive component. Arabinose and xylose are handled similarly except that arabinose is not actively transported. The active transport of glucose (which includes utilization) is about 5 times as large as for xylose and almost obscures the convective transport. There is a marked asymmetry in the convective transport: actively (isotonically) absorbed fluid carries a considerable amount of pentose with it, while osmotically secreted fluid carries very little, if any.

6482 INTESTINAL LYMPHOID TISSUE ACTIVITY DURING ABSORPTION. *(E.)* Shields, J. W. (Santa Barbara Med. Clin., Calif.). *Amer J Gastroent* 50(1): 30-36, 1968.

6483 PROTEIN NUTRITION AND FREE AMINO ACID PATTERNS. *(E.)* Leatheam, J. H., Ed., (U. Texas Med. Br., Galveston). New Brunswick, N. J. Rutger U. Press, 1968. 227 pp.

6484 SYSTEMATIC OSCILLATIONS OF AMINO ACID TRANSPORT IN LIVER FROM RATS ADAPTED TO CONTROLLED FEEDING SCHEDULES. *(E.)* Baril, E. F. (Med. Ctr., U. Wisconsin, Madison) and V. R. Potter. *J Nutr* 95(2):228-237, 1968.

6485 MEDIUM CHAIN TRIGLYCERIDES. *(E.)* Senior, J. R., Ed. (Philadelphia Gen. Hosp., Pa.). Philadelphia, U. Pennsylvania Press, 1968. 300 pp.

6486 STUDIES ON BILIARY EXCRETION OF ALKALINE PHOSPHATASE IN THE RAT. *(E.)* Fenster, L. F. (King County Hosp., Seattle, Wash.) and F. R. Simon. *Yale J Biol Med* 40(1):57-67, 1967.

6487 SOME FACTORS INFLUENCING THE COURSE OF IRON ABSORPTION CURVES. *(E.)* Brodan, V. (Fac. Gen. Med., Prague, Czechoslovakia), E. Kuhn, M. Brodanová and J. Válek. *Rev Czech Med* 15(1):10-23, 1969.

6488 IRON UPTAKE BY ISOLATED INTESTINAL BRUSH BORDERS: CHANGES INDUCED BY ALTERATIONS IN IRON STORES. *(E.)* Greenberger, N. J. (Ohio State U. Coll. Med., Columbus), S. P. Balcerzak and G. A. Ackerman. *J Lab Clin Med* 73(5):711-721, 1969.

6489 THE INTESTINAL BRUSH BORDER AS A DIGESTIVE AND ABSORPTIVE SURFACE. [EDITORIAL] *(E.)* Greenberger, N. J. (Ohio State U. Coll. Med., Columbus). *Amer J Med Sci* 258(3):144-149, 1969.

6490 INTESTINAL EXCRETION OF LOW AND HIGH MOLECULAR WEIGHT POLYVINYLPYRROLIDONE (PVP) IN PATIENTS WITH PROTEINURIA. *(E.)* Hazenberg, B. P. (Dept. Intern. Med., U. Groningen, Netherlands), L. Arisz, A. Van Zanten and E. Mandema. *Acta Med Scand* 185(6):518-522, 1969.

6491 EFFECT OF GERMFREE STATUS ON $^{64}$Cu EXCRETION BY THE RAT. *(E.)* Dowdy, R. P. (Fitzsimmons Gen. Hosp., Denver, Colo.), Y. F. Herman and H. E. Sauberlich. *Proc Soc Exp Biol Med* 130(4):1294-1297, 1969.

6492 ABSORPTION OF $^{45}$Ca AND $^{89}$Sr FROM THE ABOMASUM OF THE CALF. *(E.)* Chandler, P. T. (Agric. Res. Lab. U. Tennessee, Oak Ridge), J. A. Bacon and M. H. Wykoff. *Proc Soc Exp Biol Med* 130(4) 1257-1259, 1969.

6493 EFFECTS OF VITAMIN D AND THE STEROID HORMONES OF THE ACTIVE TRANSPORT OF CALCIUM BY THE INTESTINE. *(E.)* Kimberg, D. V. (Beth Israel Hosp., Boston, Mass.). *New Eng J Med* 280(25): 1396-1405, 1969.

6494 PHYSIOLOGIC SURFACE-ACTIVE AGENTS AND DRUG ABSORPTION II: COMPARISON OF THE EFFECT OF SODIUM TAURODEOXYCHOLATE AND ETHYLENEDIAMINETETRAACETIC ACID ON SALICYLAMIDE AND SALICYLATE TRANSFER ACROSS THE EVERTED RAT SMALL INTESTINE. *(E.)* Feldman, S. (Sch. Pharm., Temple U., Philadelphia, Pa.) and M. Gibaldi. *J Pharm Sci* 58(8):967-970, 1969.

6495 AETIOLOGY OF EXTRAHEPATIC EPITHELIAL IRON DEPOSITS IN SIDEROSIS IN BANTU. *(E.)* Buchanan, W. M. (Harari Hosp., Salisbury, Rhodesia). *J Clin Path* 22(3):296-300, 1969.

6496 EFFECT OF $^{60}$Co GAMMA IRRADIATION ON $^{59}$Fe LOSS IN STOOL. *(E.)* Miura, T. (Nagoya U. Sch. Med., Japan). *Nippon Acta Radiol* 28(5): 573-578, 1968.

6497 FUNCTION OF TRANSFERRIN. *(E.)* Fletcher, J. (U. Hosp. Coll. Med. Sch., London, England) and E. R. Huehns. *Nature* 218(5148):1211-1214, 1968.

6498 PYSIOLOGIE DE L'APPAREIL DIGESTIF (PHYSIOLOGY OF THE DIGESTIVE APPARATUS). *(Fr.)* Davenport, H. W. Paris, Masson et Cie, 1968. 248 pp.

6499 INTESTINAL ABSORPTION OF SACCHARIDES AND PEPTIDES. *(E.)* Matthews, D. M. (Westminster Med. Sch., London, England), I. L. Craft and R. F. Crampton. *Lancet* 2(7558):49, 1968.

## ABSORPTION-EXCRETION

6500 **EFFECT OF CALCIUM AND PHOSPHATES ON THE RATIO OF NONABSORBED STRONTIUM TO CALCIUM IN THE GUT.** *(E.)* Vojvodić, S. (Inst. Med. Res., Zagreb, Yugoslavia) and K. Kostial. *Arh Hig Rada* 19(1):33-35, 1968.

6501 **STUDIES ON GASTROINTESTINAL ABSORPTION OF NALIDIXIC ACID.** *(E.)* Takasugi, N. (Res. Lab. Pharm., Daiichi Seiyaku Co., Ltd., Tokyo, Japan), K. Nakamura, T. Hayashi, N. Tsunakawa and Y. Takeya. *Chem Pharm Bull Tokyo* 16(1):13-16, 1968.

See also: 6452,6453,6523,6638,6662,6675,6677,6718,6864,6918,6979,7132,
7172,7234,7345,7429,7430,7438,7440,7448,7527,7570

### 6502 ELECTRICAL ACTIVITY OF THE COLON AND ITS CLINICAL SIGNIFICANCE. *(It.)*

Provenzale, L. (Inst. Gen. Surg. Med. Ther., U. Catania, Italy) and M. Pisano. *Arch Ital Mal Appar Dig* 35(4):391-403, 1969.

The electrical activity of the colon was studied in 27 adult subjects of both sexes who were operated on for various non-intestinal abdominal diseases (cholecystectomy, splenectomy, etc.) and 8 cases of megacolon (3 adults and 5 children). As in the small intestine, the electrical activity of the colon is represented by slow waves (amplitude from 50 to 500 microvolts ($\mu$V), duration from 1-8 sec, nearly constant absence of rhythmicity, and by rapid changes of potential or "spikes" (amplitude from 20-200 $\mu$V, duration about 0.2 sec). Differences were observed in the electrical activity of various portions of the colon. The ascending colon was characterized by complete irregular slow waves with no basal rhythm; spikes were occasionally present. In the descending and transverse colon, the slow waves were more regular in form and showed some rhythmicity. The number of spikes was increased in the sigmoid. Simultaneous registration of electrical activity and intraluminal pressure changes in the descending colon revealed that a series of spikes precedes the appearance of a pressure wave. Brief periods of predominantly rapid electrical activity was observed in all cases of megacolon. Corresponding to these episodes of electrical activity were changes in intraluminal pressure.

### 6503 EFFECTS OF SEROTONIN ON THE MOTILITY, pH AND SECRETION OF THE STOMACH AND SMALL INTESTINE. *(It.)*

Blasi, A. (Inst. Gen. Clin. Med. Ther., U. Catania, Italy), F. Marletta, F. Mangiafico and F. Sorrentino. *Arch Ital Mal Appar Dig* 35(5):458-467, 1969.

The effect of serotonin (10 mg i.m.) on the motility, tone, pressure, pH and secretion of the stomach and small intestine was studied in 20 subjects (13 males and 7 females, 24-52 yr of age); 6 subjects were healthy and 8 were suffering from dyspepsia, 5 from hypertrophic gastroduodenitis, and 1 from duodenal ulcer. Serotonin showed inconsistent effects on gastric secretion and motility. While it did not appreciably modify the secretion of the small intestine, the drug produced a moderate elevation in pH and considerable hypersthenia. The divergent tonic-motor behavior of the stomach and intestine in the same subject in response to the drug is of great interest.

### 6504 EFFECT OF TRANSTHORACIC VAGOTOMY ON CANINE GASTRIC ELECTRICAL ACTIVITY.

*(E.)* Kelly, K. A. (Mayo Clin., Rochester, Minn.) and C. F. Code. *Gastroenterology* 57(1):51-58, 1969.

Transthoracic vagotomy was performed in 5 mongrel dogs (10-14 kg) to determine its effect on canine gastric electrical activity during fasting, during insulin-induced hypoglycemia, and after gastric instillation of water or cottonseed oil. Before vagotomy, the regularly recurring pacesetter potential (PP) found in the gastric wall during fasting had a mean frequency of 5.4 cycles/min and a velocity faster in the antrum than in the corpus. Action potentials (AP) accompanied approximately one-fourth of the antral PP. Insulin-induced hypoglycemia speeded corporal propagation of PP and increased the incidence of antral AP. Gastric instillation of water decreased the frequency of PP, slowed its corporal propagation, and increased the incidence of antral AP. Gastric instillation of cottonseed oil slowed corporal propagation of PP and reduced the incidence of antral AP. Vagotomy temporarily disorganized the orderly gastric electrical pattern during fasting and permanently (3 months) slowed the propagation of PP in the corpus and the antrum. Vagotomy permanently abolished the response of gastric electrical activity to insulin-induced hypoglycemia. In contrast, it did not change the pattern of the response to the instillation of water but did greatly diminish or eliminate the inhibitory effect of oil instillation on corporal PP propagation and on the occurrence of antral action potentials.

### 6505 A SPHINCTERIC MECHANISM IN THE CYSTIC DUCT OF DOGS. *(E.)*

Doyle, J. S. (Med. Coll. Virginia, Richmond) and J. T. Farrar. *Irish J Med Sci* 2(3): 109-117, 1969.

Common duct and gallbladder pressures were measured in 10 mongrel dogs weighing 12 to 15 kg. Mean resting pressures were similar (65 mm $H_2O$ vs 81 mm $H_2O$). Gallbladder infusion experiments with saline revealed a mean gradient of 85 mm $H_2O$ between that organ and the common bile duct. Common bile duct infusions of saline revealed a mean gradient of 113 mm $H_2O$ between the duct and the gallbladder. Two types of gallbladder contractions were noted: 1) contractions of high amplitude (250-300 mm $H_2O$) lasting 15-20 min associated with emptying of the gallbladder and 2) waves of low amplitude (rarely over 100 mm $H_2O$) which occurred 1-4 times per min. Three types of waves were noted in the common bile duct: 1) 50-75 mm pressure rises which occurred suddenly at the time of intraductal flow 2) waves of low amplitude occurring 4-5 times per min in an "open" preparation (observed only twice), and 3) waves of high amplitude occurring 18 times per min (observed only once). Cholecystokinin-pancreozymin (25-50 U) i.v. produced a gallbladder contraction of high amplitude (350-500 mm $H_2O$) within 10 sec of termination on 3 occasions.

### 6506 THE EFFECT OF VAGOTOMY ON BILIARY PRESSURE. *(E.)*

Williams, R. D. (U. Texas Med. Br., Galveston) and T. T. Huang. *Surgery* 66(2):353-356, 1969.

To determine the mechanism of gallbladder dilatation, the pressure was measured repeatedly in 8 of 23 dogs 9 to 24 days before and 11 to 48 days after truncal vagotomy. After pyloroplasty a Teflon catheter was led from the gallbladder to a special abdominal wall cannula for daily pressure measurements. The gallbladder pressure increased in every animal, and the increased pressure probably accounted for the dilatation. The increased pressure may be due to increased resistance of the sphincter producing a partial obstruction. The cause of the dilatation may be either sluggish gallbladder emptying, an alteration of bile flow, increased sphincter tone or a combination of these.

### 6507 ELECTRIC SLOW WAVES IN CIRCULAR MUSCLE OF CAT COLON. *(E.)*

Christensen, J. (U. Iowa Coll. Med., Iowa City), R. Caprilli and G. F. Lund. *Amer J Physiol* 217(3):771-776, 1969.

## MOTILITY

Surface glass-pore electrodes and intracellular microelectrodes were used to record electrical activity from the inner circular muscle layer of isolated strips and segments of adult cat colon. Tension was recorded simultaneously in muscle strips. Intracellular microelectrode records showed periodic uniform membrane depolarizations of 11.8 ± (SD) 6.5 mv. Rapid depolarization was followed by a plateau and slower repolarization. Slow-wave amplitude was directly proportional to cellular transmembrane resting potential between slow waves. Slow-wave duration, 3-19 sec, varied directly with the duration of accompanying contractions. External electrodes recorded depolarization as a rapid biphasic spike, repolarization as a slower biphasic signal. Slow waves of the proximal colon were rather irregular at 1-4 cycles/min; those in the distal colon were more regular at 5-7/min. Slow waves were propagated in the direction of the long axes of the circular smooth muscle cells at 1.6 ± (SD) 0.43 cm/sec. Propagation transversely across cells also occurred for variable short distances at variable rates, 1-5 mm/sec.

**6508 EFFECT OF SECRETIN ON MOTOR ACTIVITY OF STOMACH AND HEIDENHAIN POUCH IN DOGS.** *(E.)* Chey, W. Y. (Temple U. Sch. Med., Philadelphia, Pa.), S. Kosay, J. Hendricks, S. Braverman and S. H. Lorber. *Amer J Physiol* 217(3):848-852, 1969.

The effects of natural and synthetic secretin on motor activity of the gastric antrum and Heidenhain pouch were studied in 5 female mongrel dogs. The i.v. administration of secretin, in doses ranging from 0.5 to 4 clinical U/kg, resulted in prompt inhibition of motor activity of both gastric antrum and Heidenhain pouch. In the gastric antrum, increases in motor inhibition were produced by increments in dosage of secretin up to 3-4 U/kg, at which dosage the inhibitory effect leveled off. The effect of both preparations of secretin on antral motor activity was similar with regard to the degree of inhibition and duration of effect. Motor inhibition observed in the Heidenhain pouch after the administration of both preparations of secretin was similar to that of the gastric antrum, but the effect did not parallel dosage. No statistically significant dose response was observed in the pouch with either preparation of secretin. An inhibitory effect of secretin on motor activity of the stomach was observed also in dogs deprived of pancreatic exocrine secretion.

**6509 EFFECTS OF PAPAVERINE ON GASTRIC EMPTYING AND GASTRIC SECRETION IN MAN.** *(E.)* Brömster, D. (Dept. Med., Serafimer Insarettet, Stockholm, Sweden), E. Lindgren, A. Rosén and M. Theorell. *Acta Radiol [Diagn] (Stockholm)* 8(4):354-364, 1969.

The serum concentration of papaverine was studied in humans after administration of 200 and 800 mg p.o. and 40 and 80 mg i.v. The 200 mg dose produced a detectable serum concentration and 2 hr after 800 mg p.o. the serum concentration was approximately equal to the concentration observed 15 min after either i.v. dose. There was no effect on salivation, power of accomodation, heart rate, blood pressure or EKG. In studies with a test meal containing $^{131}$I, the doses p.o. resulted in an initially rapid and subsequently somewhat slower, gastric emptying. These effects were confirmed in roentgen examinations using barium contrast medium. The flocculation of the barium which was noted in all of the subjects was possibly due to qualitative changes in the gastric secretions. *In vitro* comparison of gastric juices mixed with the barium medium confirmed this.

**6510 THE ROLE OF FOOD INGESTION IN THE REGULATION OF LARGE INTESTINE MOTILITY.** *(Rus.)* Vorob'ieva, N. M. (Kiev Sci. Res. Inst. Hyg. Nutrit., USSR). *Vop Pitan* 27(1):63-67, 1968.

**6511 ESOPHAGEAL MOTOR DISORDERS: A CLINICAL SPECTRUM. [CASE REPORT]** *(E.)* Trujillo, N. P. (Walter Reed Gen. Hosp., Washington, D. C.), R. L. Slaughter and H. W. Boyce Jr. *Med Ann DC* 37(1):23-28, 1968.

**6512 EFFECT OF CHLORPROMAZINE, DIBENAMINE AND PHENOXYBENZAMINE ON THE CONTRACTILE RESPONSE OF *TAENIA COLI* TO POTASSIUM, ACETYLCHOLINE, ANGIOTENSIN AND BARIUM.** *(E.)*. Shibata, S. (Sch. Med. U. Mississippi, Jackson), O. Carrier Jr. and J. Frankenheim. *J Pharmacol Exp Ther* 160(1):106-111, 1968.

**6513 EFFECTS OF SOME NICOTINE METABOLITES AND RELATED COMPOUNDS ON ISOLATED SMOOTH MUSCLE.** *(E.)* Kim, K. S. (Med. Coll. Virginia, Richmond), J. F. Borzelleca, E. R. Bowman and H. McKennis Jr. *J Pharmacol Exp Ther* 161(1):59-69, 1968.

**6514 FURTHER ANALYSIS OF A MATHEMATICAL METHOD OF EVALUATING GASTROINTESTINAL PROPULSIVE MOTILITY.** *(E.)* Grevsten, S. (Acad. Hosp., Uppsala, Sweden), H. Johansson, B. Lindquist and G. Nylander. *Acta Chir Scand* 135(3):237-240, 1969.

**6515 USE OF THE ELECTROGASTROGRAPH EGS-3 FOR CHECKING THE PERISTALSIS OF THE INTESTINE IN THE POSTOPERATIVE PERIOD.** *(Rus.)* Kataieva, G. A. (S. M. Kirov Milit. Med. Acad., Leningrad, USSR) and R. I. Zhitniuk. *Vestn Khir Grekov* 99(11):118-119, 1967.

**6516 THE PUMP MECHANISM OF THE STOMACH AND GASTRIC EVACUATION. I.** *(E.)* Frankel, L. A. (St. Luke's Child. Med. Ctr., Philadelphia, Pa.). *Int Surg* 50(1):17-33, 1968.

**6517 THE PUMP MECHANISM OF THE STOMACH AND GASTRIC EVACUATION. II.** *(E.)* Frankel, L. A. (St. Luke's Child. Med. Ctr., Philadelphia, Pa.). *Int Surg* 50(1):155-163, 1968.

**6518 THE NATURE OF THE NERVOUS APPARATUS OF THE GALLBLADDER.** *(Rus.)* Grigor'iev, N. G. (S. V. Kurashov Kazan Med. Inst., USSR). *Arkh Anat* 54(5):50-55, 1968.

**6519 DYNAMICS OF THE COMMON DUCT.** *(E.)* Doyle, J. S. (St. Laurence's Hosp., Dublin, Ireland). *Lancet* 1(7541):531, 1968.

## MOTILITY

6520 **THE PARTICIPATION OF THE LIMBIC CORTEX AND AMYGDALOID NUCLEI IN THE CONTROL OF THE MOTOR FUNCTION OF THE GASTROINTESTINAL TRACT.** *(Rus.)* Bogach, P. G. (Shevchenko State U., Kiev, USSR) and L. A. Koval. *Biull Eksp Biol Med* 65(3):11-15, 1968.

See also: 6498,6794,6799,6859,7596

## SECRETION AND METABOLISM

521 **PHYSICAL EXERCISE AND ALCOHOL METABOLISM IN MAN.** *(E.)* Pawan, G. L. S. Middlesex Hosp. Med. Sch., London, England). *Nature* 18(5145):966-967, 1968.

522 **EFFECT OF GLUCOSE AND FRUCTOSE ADMINISTRATION ON LIPID METABOLISM N THE RAT.** *(E.)* Bar-On, H. (Hadassah U. Hosp., Jerusalem, srael) and Y. Stein. *J Nutr* 94(1):95-105, 1968.

523 **ALIMENTARY FACTORS IN THE ENDOCRINE RESPONSE TO ADMINISTRATION OF RGININE IN MAN.** *(E.)* Dupré, J. (Royal Victoria Hosp., Montreal, Canada), J. D. Curtis, R. W. Waddell and J. C. eck. *Lancet* 2(7558):28-29, 1968.

524 **EFFECT OF A MAXILLARY MOUTHGUARD ON THE PAROTID FLOW RATE RESPONSE O FLAVORED SOLUTIONS.** *(E.)* Shannon, I. L. (VA Hosp., Houston, Tex.), J. M. Terry and H. H. Chauncey. *roc Soc Exp Biol Med* 130(4):1052-1054, 1969.

6525 **EFFECTS OF CALORIC INTAKE AND INFECTION ON SOME ASPECTS OF PROTEIN METABOLISM IN DOGS.** *(E.)* Newberne, P. M. (Dept. Nutrit. Food Sci., Massachusetts Inst. Technol., Cambridge), V. R. Young and J. F. Gravlee. *Brit J Exp Path* 50(2):172-180, 1969.

6526 **EFFECT OF RATE OF GLAND FUNCTION ON pH, VISCOSITY, TOTAL SOLIDS, CALCIUM, AND MAGNESIUM IN UNSTIMULATED PAROTID FLUID.** *(E.)* Shannon, I. L. (VA Hosp., Houston, Tex.). *Proc Soc Exp Biol Med* 130(3):874-878, 1969.

6527 **THE EFFECT OF GASTROINTESTINAL SECRETIONS ON *TAENIA* EGG MEMBRANES.** *(Ger.)* Gönnert, R. (Farbenfabriken Bayer AG, Wuppertal-Elberfeld, Germany) and H. Thomas. *Z Parasitenk* 32(3): 237-253, 1969.

6528 **LES ACTUALITÉS MÉTABOLIQUES EN PÉDIATRIE (METABOLIC FACTORS IN PEDIATRICS).** *(Fr.)* Fontaine, G. Paris, Doin-Deren, 1968. 438 pp.

See also: 6485,6919,7424

## Stomach

### 6529 EFFECT OF HYDROCORTISONE ON GASTRIC MUCOSAL BLOOD FLOW AND SECRETION.

*(E.)* Jacobsen, E. D. (U. Oklahoma Med. Ctr., Oklahoma City) and W. E. Price. *Gastroenterology* 57(1):36-43, 1969.

Five mongrel dogs (12-18 kg) prepared with both gastric fistulas and vagally denervated pouches were stimulated submaximally with histamine and with pentagastrin during periods of control, long-term treatment with hydrocortisone, and post-steroid control. Hydrocortisone increased acid output from the gastric fistula during histamine stimulation but not during stimulation with pentagastrin. It increased acid output from the Heidenhain pouch during gastrin stimulation to a greater degree than during stimulation with histamine. Hydrocortisone increased mucosal blood flow from the Heidenhain pouch during gastrin stimulation, but not with histamine and not from the gastric fistula with either direct stimulant. Hydrocortisone does not appear to act on gastric secretory processes via primary changes in the gastric mucosal circulation.

### 6530 GASTRIC AND PANCREATIC SECRETION IN RESPONSE TO GASTRIC DISTENTION IN DOGS.

*(E.)* Vagne, M. (U. California Sch. Med., Los Angeles) and M. I. Grossman. *Gastroenterology* 57(3):300-310, 1969.

In 9 dogs (12 to 25 kg) with chronic gastric and pancreatic fistulas, distention of the stomach with a water-filled balloon stimulated water, acid, and pepsin secretion by the stomach and water, bicarbonate, and protein secretion by the pancreas. The gastric response increased with increasing distending volumes up to a maximum with 900 ml. The maximal acid response was about 40% of the maximal response to histamine or gastrin, and the maximal pepsin response was about 60% of the maximal response to insulin and about 10 times the maximal pepsin output to exogenous gastrin. The high pepsin response supports the view that the gastric response to distention is mediated mainly by a vagal reflex. Administration of exogenous gastrin during gastric distention depressed pepsin secretion. The high pepsin secretion seen with gastric distention, insulin hypoglycemia, and sham feeding indicate that in all of these circumstances vagal release of gastrin is limited to the small amount required to augment acid secretion in response to direct vagal impulses to the oxyntic glands and is less than the moderate amounts of gastrin that inhibit pepsin secretion. The pancreatic response to gastric distention was small and could best be demonstrated during infusion of a small background dose of secretin. The increase in volume (1 ml/15 min) was about 6% of the maximal response to endogenous secretin. The increase in protein output (44 mg/15 min) was about 20% of the response to a large dose of exogenous pancreozymin. The relative contributions of gastrin and of direct vagal impulses to these small pancreatic responses to gastric distention cannot be assessed from these studies.

### 6531 ELECTRON MICROSCOPIC DEMONSTRATION OF POLYSACCHARIDES ASSOCIATED WITH ACID-SECRETING CELLS OF THE STOMACH AFTER "INERT DEHYDRATION."

*(E.)* Sedar, A. W. (Jefferson Med. Coll., Philadelphia, Pa.). *J Ultrastruct Res* 28(1/2):112-124, 1969.

Unfixed rat gastric mucosa was embedded in hydroxypropyl methacrylate using the Pease method of rapid "inert dehydration" in ethylene glycol. After application of acidic phosphotumgstic acid (PTA) to thin sections electron microscopic examination showed intense staining of material associated with the walls of the smooth-surfaced tubules, and the surface of apical, intracellular, and basal microvilli in the acid-secreting (oxyntic) cell. PTA is known to be a specific stain for polysaccharides, a polysaccharide coating is identified on the surface projections and on the inner surface of the smooth-surfaced tubular system of the acid-secreting cell of the stomach.

### 6532 THE EFFECT OF EMETICS ON CANINE GASTRIC SECRETION.

*(E.)* Schapiro, H. (U. Tennessee Med. Units, Memphis), J. W. Lawson, A. J. Quigley Jr., L. D. Wruble and L. G. Britt. *Amer J Dig Dis* 14(7):470-476, 1969.

The effects of emesis on gastric secretion were investigated in 11 dogs (10-12 kg) with denervated gastric pouches. In adequate concentrations, copper sulfate (25 mg/kg), zinc sulfate (75 mg/kg), and Veriloid (0.2 or 0.1 mg/kg) instilled into the stomach caused salivation, retching, and vomiting which was followed, after a latent period, by an increase in the gastric volume and the acid concentration. This latent period corresponded to the gastric inhibitory phase that follows emesis. Apomorphine (0.05 to 0.6 mg/kg) i.v. which also induced salivation, retching, vomiting, and an inhibition of gastric secretion, did not augment gastric secretion.

### 6533 BETA-ADRENERGIC RECEPTORS AND GASTRIC ACID SECRETION.

*(E.)* Geumei, A. (Fac. Med., Alexandria U., Egypt), I. Issa, M. El-Gindi and Y. Abd-El-Samie. *Surgery* 66(4):663-668, 1969.

Gastric secretory studies were carried out on 20 healthy subjects (25-28 yr). After an overnight fast, the stomach was intubated, the residual content was removed, continuous suction was applied manually with a syringe, and secretion was collected for 2 30-min periods. (The first collection was discarded to assure the removal of the possible influence of intubation.) The test drug was injected i.v. in 10 min and continuous aspirations were made for 4 more 30-min periods. Nylidrin increased gastric acid secretion and volume. All effects of nylidrin were blocked by prior administration of beta-adrenergic blockade propranolol. Propranolol diminished both gastric acid secretion and volume. Beta-adrenergic receptors may be present in the human stomach.

### 6534 GASTRIC CHANGES CAUSED BY PORTACAVAL ANASTOMOSIS IN THE RAT.

*(Fr.)* Bel, A. (Red Cross Hosp., Lyon, France), R. Levrat, J. Nesmoz and J. M. Fayolle. *Biol Gastroent* 2:123-136, 1968.

An end-side portacaval anastomosis was carried out in 49 Wistar rats, 16 of which already had a chronic gastric fistula. In half of the rats both in the early and late postoperative phase (up to 2-3 months after portacaval anastomosis) numerous hemorrhagic gastric ulcers, occurring superficially in the glandular part of the stomach were found. Histologically they were due to localized necrosis followed by rubbing away of the superficial layer of the glandular epithelium. The gastric secretion was clearly modified after portacaval anastomosis and there was considerable increase in volume and free acid output without any change in acid or pepsin concentrations. The mucoprotein content was significantly lowered. These secretory disorders occurred early (i.e. they were noted during the first week after anastomosis) and persisted in spite of individual variations which were sometimes considerable. Thus hypersecretion continued for 10 weeks after the shunt operation. The pathogenesis of the ulcers and of the gastric hypersecretion is still uncertain: a humoral factor, perhaps common to both, which becomes present after total exclusion of the portal blood flow, is probably responsible.

6535 **DEMONSTRATION AND SEPARATION OF EXTRA-GASTRIC PEPSINOGENS AND ACID HYDROLASES.** *(Fr.)* Hirsch-Marie, M. H. (C.H.U. St. Antoine, Paris, France). *Biol Gastroent* 2:109-122, 1968.

Pepsinogens and acid hydrolases were isolated from various tissues and secretions. Pepsinogens were characterized by gel electrophoresis in 4 fractions (P I-IV) having optimal proteolytic activity at pH 2.0. All 4 fractions were present in the gastric mucosa, P II fraction was present in urine and plasma, P III in pyloric, duodenal, esophageal mucosa, and in seminal fluid, P IV in pyloric and duodenal mucosa. Acid hydrolases having an activity similar to pepsins, but no immunochemical similarity, were demonstrated by immunoelectrophoresis in spleen, leukocyte, thyroid and renal extracts.

6536 **SEX DIFFERENCES IN HISTIDINE DECARBOXYLASES IN RAT STOMACH.** *(E.)* Kobayashi, Y. (Worcester Found. Exp. Biol., Shrewsbury, Mass.) and D. V. Maudsley. *Biochem Pharmacol* 18(8):1817-1821, 1969.

The stomach of the male Sprague-Dawley rat contains both a soluble and an insoluble histidine decarboxylase. The soluble enzyme in the glandular stomach is the one which is generally assumed to be associated with gastric secretion. The insoluble enzyme is located in the debris fraction of the forestomach and activity varies widely in different animals. In female rats the activity of the insoluble enzyme is very low, but the activity of the soluble enzyme in the glandular stomach is similar to that in male rats. In male rats starvation causes a more rapid depletion of the insoluble enzyme than of the soluble histidine decarboxylase. Refeeding or an injection of insulin causes a sharp rise in histidine decarboxylase activity in the glandular stomach, but does not affect the insoluble enzyme in the forestomach. There is little evidence to suggest that the insoluble enzyme is of major importance in studying the role of histamine in gastric secretion.

6537 **STUDIES ON A GASTRIC SECRETION INHIBITORY SUBSTANCE IN HUMAN SALIVA (SALIVOGASTRONE).** *(E.)* Miyoshi, A. (Fac. Med. Kyoto U., Japan), M. Moriga, M. Ohbayashi, M. Kobayashi, T. Suyama and T. Imoto. *Jap Arch Intern Med* 16(2):33-50, 1969.

The purification of salivogastrone (SG) from human female saliva was attempted and its inhibitory effect on gastric secretion and ulcer formation was studied in pylorus-ligated male rats. The gastric secretion inhibitory substance was found to be nondialyzable. It was purified by DEAE-cellulose column chromatography and Sephadex G-75 and G-200 gel filtration. The purified SG had a biological activity equivalent to 1/10 raw SG. The inhibitory effect of SG was studied in another group of similar rats to which histamine, insulin and a gastrin-like tetrapeptide (TG) were administered at the same time. Gastric secretion was inhibited 1/5-1/10 by i.v. administration of 100 μg of the SG-3 fraction. With 50 mg of the SG-5 fraction, the HCl secretion stimulated by TG (5 μg) was completely inhibited. At the same time a decrease in succinic dehydrogenase activity and the number of mast cells was noted along with atrophic changes in the gastric mucosa. Pylorus-ligated ulcer, stress ulcer, steroid and reserpine ulcers were induced in rats and the effect of SG in preventing ulceration was studied. There was a remarkable decrease in all forms of ulcers.

6538 **EFFECTS OF MEDIUM-CHAIN TRIGLYCERIDES ON GASTRIC SECRETION IN RATS AND DOGS.** *(E.)* Long, J. F. (Albany Med. Coll., N. Y.) and G. La Vigne. *Amer JDig Dis* 14(9):619-624, 1969.

6539 **GASTRIC JUICE. A NOTE ON COMPOSITION AND SECRETORY PHYSIOLOGY.** *(It.)* Allegra, G. C. (Gen. Hosp., Novara, Italy). *Omnia Med* 45(1): 155-221, 1967.

6540 **BASE ALTERATIONS OF NUCLEIC ACIDS IN STOMACH WALL AFTER PROLONGED ATROPINE TREATMENT.** *(E.)* Mózsik, G. (U. Med. Sch., Pécs, Hungary), M. Hauck, I. Kóródy and Z. Szepesi. *Europ J Pharmacol* 7(1):73-79, 1969.

6541 **THE PHYSIOLOGY OF GASTRIC SECRETION.** *(E.)* Semb, L. S. and J. Myren, Eds. Oslo, Universitetsforlaget, 1968. 692 pp.

6542 **THE DYNAMICS OF SOME INDICES OF POTASSIUM AND SODIUM METABOLISM IN GASTRIC SURGERY WITH RESPECT TO ANESTHESIA.** *(Rus.)* Napalkov, P. N. (Leningrad Sanit. Hyg. Inst., USSR) and N. A. Dolnikov. *Vestn Khir Grekov* 99(10):20-24, 1967.

6543 **PATTERN OF GASTRIC ACIDITY AMONGST RAILWAY EMPLOYEES IN ASSAM.** *(E.)* Guha, S. P. (N. F. Railways, Assam, India) and N. Dastider. *Antiseptic* 66(7):487-494, 1969.

6544 **CONTINUOUS RECORDING OF pH IN THE DUODENAL BULB AFTER FOOD AND ALKALI.** *(E.)* Lawson, H. H. (Mayo Clin., Rochester, Minn.) and R. A. Rovelstad. *Gut* 10(3):215-218, 1969.

6345 **CYCLOHEXIMIDE INHIBITION OF GASTRIC SECRETION IN THE RAT.** *(E.)* Yeh, S. D. J. (Sloan-Kettering Inst., New York, N. Y.) and M. E. Shils. *Proc Soc Exp Biol Med* 130(3):807-810, 1969.

6546 **GASTRIN–NEW KNOWLEDGE OF AN OLD HORMONE.** *(E.)* Truelove, S. C. *Med Rev* 1(7):4-5, 1969.

## SECRETION AND METABOLISM

6547 **VITAMIN $B_{12}$-BINDING SUBSTANCES IN THE GASTRIC MUCOSA OF MICE AS STUDIED BY SEPHADEX GEL FILTRATION AND ISO-ELECTRIC FOCUSSING.** *(E.)* Flodh, H. (Royal Vet. Coll., Stockholm, Sweden), B. Bergrahm and B. Oden. *Life Sci* 7(4):155-159, 1968.

6548 **VARIATIONS IN THE QUANTITY OF PROTEIN SECRETED BY THE GASTRIC MUCOSA DURING HISTAMINE STIMULATION.** *(Rum.)* Vântu, A. (Inst. Med. Pharm., Bucharest, Romania), I. Stanciu, S. Tacorian, F. Vasilescu and T. Spârchez. *Med Intern (Bucur)* 20(2):189-198, 1968.

6549 **GASTRIC ACID SECRETION IN HEALTHY CHILDREN.** *(E.)* Sachdev, J. C. (H. P. Med. Coll., Simla, India) and D. Puri. *Indian J Pediat* 35(247): 388-390, 1968.

See also: 6408,6441,6468,6498,6503,6509,6560,6708,6719,
6733,6735,6766,6859,6866,6925,7022,7047,7408

## Pancreas

**6550** **A COMPARISON OF THE RESPONSE TO SECRETIN, PANCREOZYMIN AND A COMBINATION OF THESE HORMONES, IN MAN.** *(E.)* Wormesley, K. G. (Royal Infirm., Sheffield, England). *Scand J Gastroent* 4(5):413-417, 1969.

The effect of secretin and pancreozymin on the secretion of electrolytes and enzymes into the duodenum was studied in 20 human subjects receiving varying doses of 1 or both according to varying schedules. The reproducibility of the response to secretin alone and to secretin plus pancreozymin was excellent, providing a period of about one month was allowed to elapse between tests. With short intervals between tests, some subjects showed marked hypersensitivity to low doses of secretin. Pancreozymin (16 U/kg/hr) combined with a barely subthreshold dose of secretion (0.15 U/kg/hr) elicited a bicarbonate response as great as the response to a high dose rate (4 U/kg/hr) of secretin alone. The potentiation involved a change in the mechanism of secretion of bicarbonate, since the chloride response to the combination of hormones was significantly less than the chloride response to secretin alone.

**6551** **THE DUODENAL ASPIRATE FOLLOWING SECRETIN STIMULATION. A VARIANCE STUDY IN MAN.** *(E.)* Petersen, H. (Ullevål Hosp., Oslo, Norway). *Scand J Gastroent* 4(5):407-412, 1969.

The intra- and interindividual variances of variables in duodenal aspirates following a standard dose of highly purified secretin were calculated from 21 examinations in 15 healthy young males and 50 examinations in 22 patients (8 females and 14 males, 31-63 yr old) with and without pancreatic disease. The mean interval between repeated examinations was 3 weeks in the healthy males and 28 weeks in the patients. The coefficients of variation between individuals for bicarbonate concentrations, volumes, and bicarbonate outputs, ranged from 17 to 28% in healthy males and from 39 to 105% in patients. The coefficient of variation within individuals ranged from 14 to 34% and from 13 to 22% in healthy males and patients, resp. Comparison of the variances showed that the bicarbonate output provided more reliable information on the individual response to secretin than the volume and bicarbonate concentration both in healthy males and patients. The 20-min peak values were not superior to the corresponding values of the total 1-hr aspiration period in differentiating between individuals.

**6552** **AMYLASE AND LIPASE SECRETION IN THE HEPATIC AND INTESTINAL LYMPH. II. PROGRESSIVE CHANGES IN ENZYME LEVELS FOLLOWING PANCREATECTOMY.** *(E.)* Singh, H. (Hahnemann Med. Coll., Philadelphia, Pa.), J. Pepin, H. E. Appert, F. W. Pairent and J. M. Howard. *Arch Surg (Chicago)* 99(1):80-82, 1969.

After pancreatectomy in mongrel dogs (10-20 kg) there was a progressive decline in the concentration of amylase and lipase in the serum (50% of controls within 6 to 12 days) and in hepatic and jejunal lymph (30-50% fall immediately). The reduction in lipase concentration of both serum and lymph was more pronounced than that of amylase. Secretin did not stimulate a rise in serum or lymph amylase or lipase levels following pancreatectomy.

**6553** **DETERMINATION OF THE MAXIMUM ENZYME SECRETORY CAPACITY OF THE NORMAL HUMAN PANCREAS UNDER CONTINUOUS INFUSION OF SECRETIN AND PANCREOZYMIN.** *(Fr.)* Ribet, A. (Purpan Hosp., Toulouse, France), J. P. Pascal and N. Vaysse. *Biol Gastroent* 2:163-170, 1968.

Ten subjects without any organic digestive disorder underwent 24 investigations. Duodenal intubation was carried out according to a technique previously described. Boots' secretin was infused at the rate of 3 U/kg/hr. The pancreozymin preparation used was Cecekin (Vitrum 1967). The doses varied between 3 U/kg/hr and 120 U/kg/hr. Some subjects underwent only 1 test, others several (up to 5 tests/subject). The volume of each 10 min sample was measured and determinations made. A progressive reduction in enzyme output was observed until the 30th min of the examination, at which time the output became constant and remained so at least until the 60th min. At this time washing out was not complete but sufficient to permit one to judge the enzyme output under the influence of pancreozymin. This period from the 30th to the 60th min was thus chosen empirically for the calculation of average outputs. Secretion of the various enzymes was roughly equivalent, but there were a few variations in their ratio from 1 sample to another (especially between lipase and proteolytic enzymes). It seems that the maximum output was only obtained in a few subjects; it was situated between 3000 and 8500 U/min of lipase, between 30 and 137 U/min of trypsin and between 300 and 800 U/min of chymotrypsin. From one subject to another the results were so variable that it is impossible to group them on the same dose response curve. In practice one must compare the tests carried out on the same subject. Furthermore, in most subjects, in spite of very large doses, more than 100 U/kg/hr, this maximum capacity does not seem to have been obtained. This may be due either to individual variations in the maximum enzyme secretory capacity or, more probably, to variations in the strength of the pancreozymin used. One may compare these results and those obtained for the maximum bicarbonate secretion using secretin from the same source. The purity of these 2 hormones does not guarantee their secretagogue power at the time of use. The dose necessary to obtain this maximum enzyme capacity in our series was between 6 U/kg/hr and 23 U/kg/hr.

**6554** **SYNTHETIC INHIBITORS AND ESTER SUBSTRATES OF PANCREATIC KALLIKREIN.** *(E.)* Geratz, J. D. (U. North Carolina, Sch. Med., Chapel Hill). *Experientia* 25(5):483-484, 1969.

The most effective inhibitor of hog kallikrein activity was found to be 4,4-diamidinophenylamine rather than P-amidinophenylpyruvic acid as was the case with trypsin. 3-Indolepyruvic acid was a stronger inhibitor of kallikrein than tryptamine while the converse holds true for trypsin. Tryosyl and methiomyl bonds were hydrolyzed by kallikrein. Also, esters of L-tryptophan, L-phenylalamine and L-leucine were readily split by the enzyme. Some difference in activity was noted between 2 kallikrein preparations.

**6555** **EFFECT OF VAGOTOMY ON THE CANINE PANCREATIC SECRETION AFTER FEEDING.**

*(E.)* Henriksen, F. W. (Inst. Exp. Res. Surg., U. Copenhagen, Denmark) and S. J. Rune. *Scand J Gastroent* 4(5):435-440, 1969.

In 5 dogs with duodenal and gastric Thomas cannulas, the effect of vagotomy on the external pancreatic secretion in response to a meat meal was investigated. Precautions were taken to maintain the normal regulation of neutrality in the duodenum during the post-prandial period. Gastric acid secretion was determined in some experiments. After vagotomy the secretion of gastric acid and pancreatic fluid and bicarbonate were reduced to the same degree, about 85%, while the pancreatic secretion of protein was reduced only 57%. Cholinergic stimulation with Urecholine increased the pancreatic secretion of fluid and bicarbonate to pre-vagotomy levels. Protein secretion did not attain that level, indicating an impaired protein secretion. The reduction of pancreatic fluid and bicarbonate secretion is attributed to a reduced release of secretin from the duodenum, resulting from the reduced amount of gastric acid entering it.

6556 GLUCAGON. *(Ger.)* Weinges, K. F. Stuttgart, Georg Thieme, 1968. 112 pp.

6557 A TECHNIQUE FOR CONSTANT PANCREAS STIMULATION. *(Sp.)* Angelillo-Mackinlay, T. (Massachusetts Gen. Hosp., Boston) and G. L. Nardi. *Rev Argent Cir* 13(1/3):15-16, 1967.

6558 SERUM AMYLASE AND CHANGES IN PANCREATIC FUNCTION AND STRUCTURE AFTER LIGATION OF PANCREATIC DUCTS. *(E.)* Hiatt, N. (Dept. Pathol. U. Southern California, Los Angeles) and N. E. Warner. *Amer Surg* 35(1):30-35, 1969.

6559 INTERRELATIONSHIPS OF ALIMENTARY FACTORS, INTESTINAL HORMONES AND SECRETION OF INSULIN AND GLUCAGON. (EVALUATION OF TOTAL HORMONAL INSULIN). *(It.)* Marri, G. (Inst. Semeiotic Med., U. Perugia, Italy). *Ann Fac Med Chir* 59(2):297-305, 1967.

6560 EFFECTS OF SECRETIN, PANCREOZYMIN, OR GASTRIN ON THE RESPONSE OF THE ENDOCRINE PANCREAS TO ADMINISTRATION OF GLUCOSE OR ARGININE IN MAN. *(E.)* Dupre, J. (VA Hosp., Dallas, Tex.), J. D. Curtis, R. H. Unger, R. W. Waddell and J. C. Beck. *J Clin Invest* 48(4):745-757, 1969.

6561 SHIFTS IN DNA, RNA AND SUCCINEDEHYDROGENASE ACTIVITY IN THE PANCREAS IN EXPERIMENTAL ISCHEMIA. *(Rus.)* Khananiev, L. I. (Ivano-Frankovsk Med. Inst., USSR) and N. M. Oleinik. *Arkh Anat* 54(1):29-33, 1968.

6562 PANCREATIC PATHOLOGY IN MANGANESE-DEFICIENT GUINEA PIGS. *(E.)* Shrader, R. E (Dept. Nutrit., U. California, Davis) and G. J. Everson. *J Nutr* 94(2):269-281, 1968.

6563 PANCREATIC ADAPTATION TO CHANGE IN DIETARY PROTEIN SOURCE IN RATS FED AT DIFFERENT FREQUENCIES. *(E.)* Snook, H. T. (New York State Coll. Home Economics, Ithaca). *J Nutr* 94(2): 351-360, 1968.

6564 THE CYTOGENESIS OF THE ALPHA AND BETA ISLETS IN THE CHICKEN PANCREAS. *(E.)* Ono, K. (Dept. Vet. Anat., Iwate U., Morioka, Japan). *Acta Anat Nippon* 42(3):123-131, 1967.

See also: 6398,6431,6530,6596,6767,7195,7216,7223,7224

## Hepatobiliary Tract

**6565 A COMPARISON OF THE EFFECT OF DIET AND OF ETHIONINE ON RAT LIVER HISTIDINE DEAMINASE AND UROCANASE.** *(E.)* Kolenbrander, H. M. (Dept. Chem., Central Coll., Pella, Ia.). *Canad J Biochem* 47(4):437-441, 1969.

Low levels of ethionine (e.g. 5 mg/100 g body weight at 12 hr intervals), when fed or injected s.c., into Sprague-Dawley rats, caused a marked decrease in the level of rat liver urocanase activity but produced a slight increase in the level of histidine deaminase activity. In contrast, fasting, or feeding a protein-free diet resulted in decreased activities of both enzymes. (Synthetic diets using 0% or 12% casein were used.) Although animals fed the protein-free diet lost liver urocanase and histidine deaminase activities at a more rapid rate, the activities of both enzymes were also depressed by the 7th day of fasting. Both enzymes assist in the production of energy from protein. Fasted animals must catabolize protein to provide energy whereas animals fed a diet rich in carbohydrate and devoid of protein need not. Ethionine probably does not inhibit urocanase through the general inhibition of protein synthesis, but through its incorporation into the enzyme molecule with a concomitant loss of enzymatic activity, although S-adenosylethionine or another metabolite of ethionine may specifically and irreversibly inhibit urocanase. Methionine, whether fed or injected, reduced the magnitude of the effect of ethionine on urocanase, but s.c. injected ATP and related compounds did not. The limited capacity of methionine to reverse the effects of ethionine may reflect a competition between the two amino acids in protein synthesis.

**6566 THE DEVELOPMENT OF THE HEPATIC MEGALOCYTOSIS OF CHRONIC PYRROLIZIDINE ALKALOID POISONING.** *(E.)* Jago, M. V. (Commonwealth Sci. Indust. Res. Organization, Div. Anim. Hlth., Australia). *Amer J Path* 56(3):405-422, 1969.

Advanced megalocytosis of the liver parenchyma developed in 8-week-old hooded Wistar rats of both sexes after the administration of i.p. lasiocarpine and intragastric carbon tetrachloride (0.25 or 0.5 mg/kg in paraffin) at dose levels which, when given independently produced only slight nuclear and cell enlargement. The dose of lasiocarpine was 38 μmol (15.6 mg)/kg body weight given once every 4 weeks. Advanced hepatic megalocytosis was produced within 4 weeks by a single dose of 76 μmol lasiocarpine/kg body weight, administered to rats 2 weeks old; a comparable dose given to rats 10 weeks old produced only a slight nuclear enlargement in the same time. However, the administration of a larger, necrogenic dose of lasiocarpine, 152 μmol/kg body weight, to 10-week-old rats produced megalocytosis within 8 weeks. In the rats injected at 2 weeks, the chronic lesion either progressed until the rat died or the damaged liver tissue was largely replaced by massive liver regeneration. The mitotic index of the liver parenchyma of 2-week-old rats was reduced from 1.61 to 0.04 1 day after a single i.p. injection of 50 μmol lasiocarpine/kg body weight. At 4 weeks after the injection, 2 populations of cells were present, megalocytes, and small, uniform cells in regenerating nodules. The mitotic index of the regenerating nodules was 3.33. Although all mitoses observed in the megalocytes were abnormal, the number of cells attempting division was not significantly different from the number of normal mitoses present in control livers. The megalocytosis produced in liver parenchyma by pyrrolizidine alkaloids may develop as a result of an interaction between the mitotic inhibition, induced in the hepatocytes by hepatotoxic pyrrolizidine alkaloids, and a stimulus for growth or regeneration.

**6567 PROPERTIES OF 4-METHYLUMBELLIFERYL-β-GALACTOSIDASE ACTIVITIES IN HUMAN LIVER.** *(E.)* Hultberg, B. (U. Hosp., Lund, Sweden) and P. A. Öckerman. *Scand J Clin Lab Invest* 23(3):213-217, 1969.

The properties of 3 gel filtration peaks of 4-methylumbelliferyl-β-galactosidase were studied from control and gargoylism human liver. At 50C, the activity of the enzyme in peaks I and II was rapidly destroyed, but decreased slowly in peak III. Galactonolactone inhibited the activity in all peaks to a similar degree. Gluconolactone strongly inhibited the activity in peak III but less so in the other peaks. Tris caused about the same degree of inhibition of peaks I and II. Peak III was more sensitive to Tris than were the other peaks. Lactose and glycerol caused less inhibition of peak III than of the other peaks. Refiltration experiments and electrofusing further supported these results. It was shown that normal human liver contains only 2 different 4-methylumbelliferyl-β-galactosidases, represented by peaks II and III. Both of these enzymes also appeared in peak I, possibly because of attachment to membranes. Only 1 of the 2 enzymes was deficient in gargoylism.

**6568 LIVER TRANSPLANTATION IN MAN–IV, HAEMMORRHAGE AND THROMBOSIS.** *(E.)* Flute, P. T. (King's Coll. Hosp. Med. Sch., London, England), M. O. Rake, R. Williams, M. J. Seaman and R. Y. Calne. *Brit Med J* 3(5661):20-23, 1969.

Blood coagulation and fibrinolytic factors were measured in 13 patients treated by liver transplantation. Two died at surgery of uncontrollable hemorrhage, 1 other required 50 U of blood. During operation intravascular coagulation and fibrinolysis were increased, (decreased platelets, fibrinogen and plasminogen), but seldom to a degree which would cause abnormal bleeding. Measurement of the catabolism of radioactive fibrinogen showed that increased intravascular coagulation continued for long periods after the operation. Despite secondarily increased fibrinolysis, there was a high incidence of thrombosis (deep leg veins, 2, hepatic artery, 1, and superficial venous thrombosis in the majority). Treatment with anticoagulants or with fibrinolysis inhibitors may be valuable in these patients.

**6569 GLUCOCORTICOID CONTROL OF THE LIVER GLYCOGEN SYNTHETASE-ACTIVATING SYSTEM.** *(E.)* Mersmann, H. J. (Biol. Dept., State U. New York, Buffalo) and H. L. Segal. *J Biol Chem* 244(7):1701-1704, 1969.

The activity of the enzyme system which converts hepatic glycogen synthetase to the active form disappeared from the livers of fasted, adrenalectomized Sprague-Dawley rats. Studies measuring $^{14}C$ incorporation into glycogen and the utilization of $^{14}C$-UDP-glucose indicated that the levels of active synthetase in such preparations was nil. After the administration of glucocorticoid there was a return of activating enzyme activity and gradual increases in the level of active glycogen synthetase, the rate of glycogen synthesis, and the glycogen content of the liver. The changes in activating enzyme activity may be the proximate cause of the changes in the level of active synthetase and the consequent alteration in hepatic glycogen content in response to the glucocorticoid state of the animal.

### 6570 LIVER TRANSPLANTATION IN MAN–III, STUDIES OF LIVER FUNCTION, HISTOLOGY, AND IMMUNOSUPPRESSIVE THERAPY. *(E.)*

Williams, R. (King's Coll. Hosp., London, England), R. Y. Calne, I. D. Ansell, B. S. Ashby, P. A. Cullum, J. L. Dawson, A. L. W. F. Eddleston, D. B. Evans, P. T. Flute, P. M. Herbertson, V. Joysey, A. M. C. McGregor, P. R. Millard, I. M. Murray-Lyon, J. K. Pena, M. O. Rake and R. A. Sells. *Brit Med J* 3(5661): 12-19, 1969.

The experience gained from 13 hepatic transplant operations is described, with particular reference to the findings in 9 patients who survived the immediate postoperative period. Pathology in the recipients included biliary atresia (2 children), carcinoma of the hepatic duct (2), primary hepatoma (2), and cirrhosis (5). A major problem was postoperative infection. Fulminant pneumonia caused death in 2 adults, at a time when liver function was virtually normal. Infection related to bile fistula and sepsis may be overcome by the use of an improved method of biliary drainage by cholecyst-dochostomy, which was carried out in the last 2 patients. Jaundice in the second week due to rejection was observed in several cases. The striking histologic change was centrilobular cholestasis. The jaundice, which was not prevented by the administration of antilymphocyte globulin, was rapidly controlled by temporarily increasing the dose of prednisone. One patient who survived for four and a-half months and who had a poor tissue match subsequently developed chronic rejection with progressive cholestatic jaundice. Five of the patients were able to go home and 2 were alive and well 14 and 20 weeks after treatment.

### 6571 CHANGES IN CANINE BILE-FLOW AND COMPOSITION AFTER VAGOTOMY. *(E.)*

Fletcher, D. M. (Professorial Surg. Unit, Leeds, England) and C. G. Clark. *Brit J Surg* 56(2):103-106, 1969.

A new common duct fistula which maintains complete enterohepatic circulation of bile in the presence of an intact sphincter of Oddi was used to study patterns of bile flow and composition in 6 dogs before and 5 dogs after vagotomy. Each dog had 5 tests. Before and after vagotomy basal volumes in the starving state were negligible. Prior to vagotomy a fatty meal induced a flow of approximately 5½ ml in the first 30 min which increased to 6½ by 45 min. After vagotomy bile flow in response to the meal was reduced to about 1 ml/half-hour period. This reduction occurred in all animals and was highly significant. This diminution persisted for at least 2 months. Cholesterol and phospholipid concentrations were unaffected by vagotomy. Total cholate concentration was reduced at all points after vagotomy by a significant margin except at the basal level.

### 6572 3β-HYDROXY-$C_{24}$-STEROID DEHYDROGENASE IN RAT LIVER MICROSOMES. *(E.)*

Ikawa, S. (Tottori U. Sch. Med., Yonago, Tottori-Ken, Japan). *Yonago Acta Med* 12(3):155-162, 1969.

Among the subcellular fractions of fasted male Wistar rat liver homogenates the microsomal fraction contained the highest enzyme activity of a 3β-hydroxy-$C_{24}$ steroid dehydrogenase requiring NADP as the preferential cofactor, while the soluble fraction lacked such enzyme activity. This microsomal fraction catalyzed the reverse reaction of the dehydrogenation of 3β,7α- or 3β,7β-dihydroxychol-5-enoic acid. The optimal pH of the enzyme activity was about pH 9.0. This enzyme activity was little influenced by biliary drainage, but was markedly diminished by sonication.

### 6573 DETERMINATION OF INDIVIDUAL CONJUGATED BILE ACIDS IN HUMAN BILE.

*(E.)* Shioda, R. (Highland Gen. Hosp., Oakland, Calif.), P. D. S. Wood and L. W. Kinsell. *J Lipid Res* 10(5):546-554, 1969.

A method has been developed and validated for the determination of the 6 major conjugated bile acids, cholesterol, and total phospholipids in bile of human subjects previously injected with 4-$^{14}$C-cholesterol. The procedure is designed for use with 5-10 ml of duodenal or T-tube bile and eliminated difficulties associated with existing methods for bile acid determination, in particular the requirement for preliminary saponification under pressure or the use of paper chromatography. Saponification under pressure is employed only in steps where partial destruction of the steroid moiety of conjugated bile acids is not a crucial matter. A preliminary Folch extraction and washing step separated free cholesterol and phospholipids (bottom layer) from the six major conjugated bile acids (top layer). The conjugated bile acids were then fractionated cleanly by thin-layer chromatography to give four groups, the $^{14}$C content of each of which was determined. A second aliquot of the top layer was used to determine (after deconjugation) the radioactivity ratio of deoxycholic acid to chenodeoxycholic acid for the two unresolved groups (dihydroxycholanic acid conjugates with glycine and taurine, resp.). A third aliquot was used for determination of specific activities of the methyl esters of cholic, chenode oxycholic, and deoxycholic acids derived from the total bile salts. Appropriate calculations yielded the concentration in bile of all six major bile acid conjugates.

### 6574 THE CONVERSION OF GLUCOSE AND FRUCTOSE TO FATTY ACIDS IN THE HUMAN LIVER. *(E.)*

Zakim, D. (U.S. Army Med. Res. Nutrit. Lab., Denver, Colo.), R. H. Herman and W. C. Gordon Jr. *Biochem Med* 2(6):427-437, 1969.

In human liver slices obtained by open biopsy from normal organs $^{14}C_6$-fructose was metabolized to fatty acids, $CO_2$, and glyceride-glycerol at a greater rate than $^{14}C_6$-glucose. The conversion of $^{14}C_6$-glucose to fatty acids was dependent on the medium glucose concentration. These results, in the human liver, are similar to those in the rat. Enzyme activities (fructokinase, F-I-P Aldolase, triokinase, alcohol dehydrogenase for the glycolysis of fructose were greater than those (glucokinase, hexokinase, phosphofructokinase, F-I, G-P Aldolase, pyruvate kinase) for the glycolysis of glucose. The rate of fatty acid synthesis in human liver was related directly to the rate of glycolysis. This dependence of fatty acid synthesis on the glycolytic rate seems to result from the fact that hepatic fatty acid synthesis is limited by the availability of substrate. The increased lipogenic potential associated with fructose as compared to glucose or with very high glucose concentrations could explain, in part, the differential effects of different carbohydrates on the plasma triglyceride concentration in man.

### 6575 AN ELECTRON MICROSCOPIC STUDY OF THE LIVER OF ENDOTOXIN-SHOCKED DOGS TREATED WITH A COMBINATION OF PROPIOMAZINE AND LEVARTERENOL.

*(E.)* Boler, R. K. (U. Mississippi Med. Ctr., Jackson), A. J. Bibighaus III and J. G. Brunson. *Lab Invest* 20(4):319-325, 1969.

Treatment of endotoxin-shocked adult mongrel dogs with i.v. propiomazine (250 mg) and levarterenol (10 mg) increased survival and prevented or reduced the severity of most of the previously described ultrastructural alterations of the liver. The drugs prevented the early, severe fragmentation and sloughing of sinusoidal endothelium and the subsequent swelling and rupture of hepatocytes. Congestion and occlusion of sinusoids with pooled blood were prevented. Sinusoids often contained numerous leukocytes and much glycogen. Glycogen content of hepatocytes remained high throughout the 4½ hr of the study, in contrast to the rapid depletion of glycogen seen in untreated endotoxin shock. Hepatocyte cytoplasm retained its organized architecture although there was slight swelling of mitochondria and minor changes in other organelles. Vacuolation of hepatocytes, which was severe at all intervals in untreated shock, was greatly reduced, and few vacuoles (cytosomes) were seen during treatment. Although the formation of dense fibrin-containing cytosomes was not prevented by this therapy, their number and size were reduced, and they never reached the proportions seen during untreated shock. The liver is the primary target organ during endotoxin shock therapy. This combination of drugs may be useful in the treatment of endotoxin shock.

### 6576 STUDIES OF THE FUNCTIONAL CHANGES IN THE RETICULO-ENDOTHELIAL AND PARENCHYMAL CELLS OF THE LIVER FOLLOWING PARTIAL HEPATECTOMY IN DOGS.

*(E.)* Aronsen, K. F. (Allmanna Sjukhuset, Malmo, Sweden), H. Grundsell, E. G. Ohlsson and B. Waldeskog. *Acta Chir Scand* 135(2):165-169, 1969.

Functional changes were found in the reticuloendothelial and parenchymal cells of the liver following partial hepatectomy in 19 healthy dogs. In the immediate postoperative phase there was a decrease in the plasma clearance of BSP, $^{131}$I Rose Bengal ($^{131}$IRB) and colloidal radiogold. Compared with $^{131}$IRB the immediate postoperative decrease in BSP was more pronounced. Later in the postoperative period the plasma clearance of both test substances increased and reached preoperative levels about 6-8 weeks after operation. This increase can be explained by progressive recovery of the parenchymal cells and regeneration of the parenchymal cell mass. The plasma clearance of radiogold was decreased on postoperative days 8-12, and during the later postoperative period increased and reached preoperative level at about 6 weeks. This increase can be explained by progressive recovery of the liver reticuloendothelial cells (RES), regeneration of the RES and return of hepatic blood transit time to preoperative values. These findings demonstrate normalization of liver parenchymal cell excretion activity and liver reticuloendothelial phagocytic activity by 6-8 weeks after partial hepatectomy.

### 6577 STIMULATION OF GLYCOPROTEIN SYNTHESIS BY PHOSPHORYLCHOLINE *IN VIVO* AND IN LIVER SLICES.

*(E.)* Mookerjea, S. (Banting Best Dept. Med. Res., U. Toronto, Canada), C. E. Park and A. Chow. *Biochem Biophys Res Commun* 36(5):851-857, 1969.

Within 2 hr after 20 mg/100 g body weight phosphorylcholine i.p. injection into 2-days choline-deficient Wistar rats there was a 52% increase of plasma glycoprotein synthesis and significant decrease of liver triglycerides. Similar treatment with choline showed no such effects. When phosphorylcholine (10 mg/100 g) and choline were injected daily into the deficient animals for 5 days, both compounds had almost identical effects on plasma glycoprotein synthesis and liver triglycerides. The 5-day treatment with choline may restore the phosphorylcholine level of the choline-deficient liver, which is known to be greatly reduced in choline deficiency. When the lower dose of phosphorylcholine was injected, there was no hemoconcentration or excess peritoneal fluid such as occurred with the higher dose. The effect of phosphorylcholine, in liver slices in contrast to choline, was found to be even more striking on the incorporation of $^{14}$C-1-glucosamine into medium proteins. The maximum stimulatory effect of phosphorylcholine was observed at 37C and at pH 7.4.

### 6578 THE EFFECT OF ETHANOL AND CARBON TETRACHLORIDE ADMINISTRATION ON HEPATIC LIPID-SOLUBLE ANTIOXIDANT ACTIVITY.

*(E.)* Di Luzio, N. R. (Tulane U. Sch. Med., New Orleans, La.) and A. D. Hartman. *Exp Molec Path* 11(1):38-52, 1969.

The effects of oral intubation of ethanol and $CCl_4$ on hepatic antioxidants in female Sprague-Dawley rats were studied. In another series, the animals were pretreated with N,N′-diphenyl-p-phenylenediamine (DPPD). While total liver lipid soluble antioxidant activity was not significantly modified in either ethanol- or $CCl_4$-treated groups, the mitochondrial, but not microsomal, antioxidant concentration was significantly (24%) reduced 2 hr after the administration of ethanol. In contrast, microsomal lipid soluble antioxidant activity was significantly (16%) decreased in $CCl_4$-treated rats, while mitochondrial antioxidant activity remained unaltered. These selective changes correlate well with the subcellular sites of ethanol- and $CCl_4$ induced lesions and with previous demonstrations of lipoperoxidation. The i.p. administration of the lipid soluble antioxidant DPPD produced a 3 to 4-fold increase in total liver lipid antioxidant levels (as well as a comparable increase in brain tissue); with a slight increase in mitochondrial antioxidant levels and a great increase in the microsomal fraction, not significantly altered by ethanol or $CCl_4$. Results of incubation studies using normal rat liver homogenates revealed that in all these instances, the decrease in lipid soluble antioxidant concentration preceded the formation of malonaldehyde. A relative degree of insensitivity and a possible limitation of the use of conjugated diene analysis in the detection of the

the peroxidation process was thus indicated. Lipid antioxidants, such as DPPD, probably exert their protective effect by their antioxidant activity exerted against an induced free radical attack at specific subcellular sites. While it remains to be established that the observed decline in antioxidant concentrations is sufficient to induce the mitochondrial or microsomal functional and ultrastructural aberrations which characterize acute ethanol or $CCl_4$ administration, the present studies do extend the concept of lipid peroxidation in the pathogenesis of certain types of chemical induced hepatic injury and the possible role of antioxidants in the inhibition of injury.

6579 **ENZYMES OF ASCORBIC ACID METABOLISM IN RAT LIVER: EFFECT OF FASTING FOLLOWED BY REPLETION.** *(E.)* Sasmal, N. (Dept. Biochem., U. Coll. Sci., Calcutta, India), N. C. Kar, D. Mukherjee and G. C. Chatterjee. *Indian J Biochem* 6(2):96-98, 1969.

Male albino rats (60-75 g) fasted for 4 days showed a 19% loss in body weight, with disproportionately greater loss in liver weight and a marked decrease in their liver ascorbic acid content. Fed for 1 week with a diet containing either 18% casein or groundnut protein (qualitatively different) as the source of protein; the liver weight, liver ascorbic acid content, and to some extent body weight, were restored. Sequential studies of the enzymes related to L-ascorbic acid synthesis and breakdown, and the synthesis of L-xylulose showed decrease during starvation in the activities of L-gulonalactone oxidase, ascorbate oxidase, uronolactonase, and most strikingly of D-glucuronolactone reductase, L-gulonate dehydrogenase and 3-oxo-L-gulonate decarboxylase. After repletion with casein diet, the activities of all the enzymes were restored to original levels. Substitution of groundnut protein in the repletion diet resulted in significantly higher activities of L-gulonolactone oxidase, L-gulonate dehydrogenase, 3-oxo-L-gulonate decarboxylase and uronolactonase.

6580 **THE EFFECT OF AGE ON PROTEIN SYNTHESIS IN MOUSE LIVER.** *(E.)* Mainwaring, W. I. P. (Imperial Cancer Res. Fund, London, England). *Biochem J* 113(5):869-878, 1969.

A system of microsomes and 105,000 g supernatant from livers of old male C57 black and tan mice was less able to promote the incorporation of $^{14}C$ phenylalanine into protein than a similar system from livers of young animals. The decrease in $^{14}C$ phenylalanine incorporation was probably due to changes in microsomes from old animals rather than in the cell-sap fraction. Decreased synthetic ability was found in various classes of microsomes from older animals, namely unfractionated, light and heavy microsomes, but not in detergent-washed ribonucleoprotein particles. Deletions of certain detergent-soluble microsomal proteins accompany the decreased synthetic ability of microsomes from older animals. Microsomes from old mice were less responsive to a synthetic messenger RNA, polyuridylic acid, which was partly due to a higher rate of hydrolysis in the presence of cell sap from animals of extreme age. Other more direct evidence, from the priming of a cell-free protein-synthesizing system from bacteria and the examination of ribonucleoprotein particles on sucrose density gradients, suggests that senescence is accompanied by a decrease in messenger RNA content.

6581 **THE *IN VITRO* CONVERSION OF BILE PIGMENTS TO THE UROBILINOIDS BY A RAT CLOSTRIDIA SPECIES AS COMPARED WITH THE HUMAN FECAL FLORA. I. BILIRUBIN AND BILIRUBIN GLUCURONIDE.** *(E.)* Watson, C. J. (Dept. Med., U. Minnesota, Minneapolis), J. W. Hall III and M. Weimer. *Biochem Med* 2(6):461-483, 1969.

The reducing activity of a Clostridia species either in pure culture or grown with *E. coli* was compared with various samples of whole human fecal flora, the substrate being either free bilirubin (Br) or bilirubin glucuronide (BG). With varying media conditions *E. coli* failed to affect the degree or character of the reduction of Clostridia, and by itself had no effect on reduction. BG was generally more efficiently reduced than free Br; a considerable fraction of the urobilinogen formed from the glucuronide was still conjugated and behaved as a labile, ester glucuronide; none of the urobilinogen from free bilirubin did this. Class II and III urobilinoid chromogens were formed in varying proportions when the Clostridia were grown in trypticase soy agar (TSA) or beef broth media, whether the substrate was Br or BG. Class I representatives were rarely observed. The human fecal flora from various individuals also produced Class II and III urobilinoid chromogens when grown in TSA media, but when the same flora were grown in beef broth, Class I, or dipyrrolinone, was more often observed. This was also true on occasion with certain samples of fecal flora grown in the TSA media. Bacteria which are capable of reducing bilirubinoids to urobilinoids encounter greater difficulty in converting *d*-urobilinogen as contrasted with its *l*-enantiomer, to *l*-half-stercobilinogen and thence to *l*-stercobilinogen.

6582 **THE *IN VITRO* CONVERSION OF BILE PIGMENTS TO THE UROBILINOIDS BY A RAT CLOSTRIDIA SPECIES AS COMPARED WITH THE HUMAN FECAL FLORA. II. MESOBILIRUBIN AND DIHYDROMESOBILIRUBIN.** *(E.)* Watson, C. J. (Dept. Med., U. Minnesota, Minneapolis), M. Weimer, A. Moscowitz, D. A. Lightner, Z. J. Petryka and E. Davis. *Biochem Med* 2(6):484-508, 1969.

Mesobilirubin (Mb) or dihydromesobilirubin (Dhmb) were converted by a pure strain of rat Clostridia to class II and III urobilinoid chromogens (*l*-half-stercobilinogen and *l*-stercobilinogen) in typticase soy and half broth agars. This was also true in some experiments with various samples of human fecal flora; in others, only or mainly class I (*d*-urobilinogen) was formed. Mass spectral analysis revealed that with Mb as substrate, the corresponding urobilin was the diethyl ($H_{42}$, mol wt 590) form while with bilirubin the less saturated presumably monovinyl (mol wt 588) type, was also noted. In a number of experiments with fecal flora, mixtures of class I and II were formed as determined by $FeCl_2$ oxidation patterns, optical activity, and mass spectra. In certain of these experiments in which Mb was the substrate, Dhmb was also identified. It is important as a branch point intermediary. *d*-Urobilinogen $H_{44}$ in contrast to its *l*-enantiomer, must be uncoiled and recoiled, in transition to *l*-half sterocobilinogen. This process requires extra energy of activation which readily accounts for the appearance of *d*-U class I, either in bacterial cultures as presently studied, or in some samples of feces *in vivo*.

6583 LACK OF INHIBITION OF HEPATIC CHOLESTEROL SYNTHESIS BY DIETARY CHOLESTEROL IN CASES OF FAMILIAL HYPERCHOLESTEROLEMIA. *(E.)* Khachadurian, A. K. (Dept. Biochem. Intern. Med., American U. Beirut, Lebanon). *Lancet* 2(7624):778-780, 1969.

Incorporation of $^{14}$C-1-acetate into cholesterol by liver slices from 3 patients homozygous for familial hypercholesterolemia was examined before and after 4 days on a high cholesterol diet. There was no suppression of hepatic cholesterol biosynthesis after the high cholesterol diet. This is in striking contrast to the almost complete suppression found in healthy individuals. Failure of this regulatory mechanism could be the metabolic defect responsible for familial hypercholesterolemia.

6584 METABOLIC AND ELECTROPHORETIC STUDIES OF RAT LIVER SORBITOL DEHYDROGENASE. *(E.)* Murray, R. K. (Dept. Biochem., U. Toronto, Ontario, Canada), I. Gadacz, M. Back, S. Hardin and H. P. Morris. *Canad J Biochem* 47(6):587-593, 1969.

The effect of various factors on the activity of rat liver sorbitol dehydrogenase was investigated. The activity of the enzyme (expressed per gram of tissue) was similar in the livers of adult male and female Wistar rats (approximately 300 g) and was not affected by adrenalectomy, cortisone injection, or hypophysectomy. Different routes of administration of sorbitol also produced little change in activity. The enzyme activity declined significantly during 1 week of starvation. Activity was low in fetal liver and rose gradually during the postnatal period to reach adult levels by approximately 40 days after birth. Sorbitol dehydrogenase activity in the moderately well-differentiated Morris hepatoma 5123 T.C. was studied and found to be approximately 40% of that of normal liver. Using the technique of starch-gel electrophoresis in sodium borate, the rat liver enzyme in sodium borate was not affected by a variety of metabolic conditions and was also identical in the hepatoma. The multiple molecular forms are similar species of the enzyme and interaction with a starch-borate complex may be important in their resolution.

6585 REGULATION OF CHOLESTEROL BIOSYNTHESIS IN RAT LIVER: DIURNAL CHANGES OF ACTIVITY AND INFLUENCE OF BILE ACIDS. *(E.)* Back, P. (Biochem. Inst., U. Munich, Germany), B. Hamprecht and F. Lynen. *Arch Biochem* 133(1):11-21, 1969.

Male Sprague-Dawley rats (100-200 g) maintained on semisynthetic diets showed a low rate of acetate incorporation into cholesterol, when compared with rats fed a commercial diet. Addition of a bile acid sequestering anion exchange resin to the semisynthetic diet caused a several-fold increase of hepatic cholesterol synthetic activity. A diurnal rhythm was demonstrated for the incorporation of $^{14}$C-1-acetate (but not of mevalonate) into cholesterol by rat liver slices and liver extracts. Synthesis at midnight was increased by a factor of 3.8 over the synthesis measurable during the day. The rhythmic activity changes are due to activity changes of the enzyme system synthesizing mevalonate due, in turn, to alterations of the level of enzyme protein. Cholic acid, when given with the diet, also acted at this enzymic step as inhibitor of cholesterol biosynthesis and is shown to be much more effective than dietary cholesterol, but the concentration levels of cholic acid in liver did not show alterations which can be correlated with the observed rhythmic activity changes under conditions of normal feeding.

6586 INDUCTION OF IMMUNOLOGICAL TOLERANCE BY PORCINE LIVER ALLOGRAFTS. *(E.)* Calne, R. Y. (Dept. Surg., U. Cambridge, England), R. A. Sells, J. R. Pena, D. R. Davis, P. R. Millard, B. M. Herbertson, R. M. Binns and D. A. L. Davies. *Nature* 223(5205):472-476, 1969.

Liver allograft experiments with Large White, and Landrace pigs show that animals given no immunosuppression can survive for prolonged periods (up to 18 months) with orthotopic liver transplants. Similar animals reject skin, kidney and heart rapidly. Orthotopic and accessory heterotopic liver allografts protect preferentially from rejection grafts of donor specific skin, (rejection occurred after 24 days vs 1-2 weeks in indifferent grafts) kidney (5 of 16 animals survived more than 2 months) and possibly heart. Injected soluble liver antigen may also protect donor specific tissue from rejection. Allogenic liver can induce immunological tolerance in immunologically mature pigs by releasing toleragenic forms of histocompatibility antigens.

6587 STUDIES ON THE MECHANISM OF GALACTOSAMINE HEPATITIS: ACCUMULATION OF GALACTOSAMINE-1-PHOSPHATE AND ITS INHIBITION OF UDP-GLUCOSE PYROPHOSPHORYLASE. *(E.)* Keppler, D. (Biochem. Inst., Albert Ludwigs U., Freiburg, Germany) and K. Decker. *Europe J Biochem* 10(2):219-225, 1969.

D-Galactosamine produces a liver damage closely related to human viral hepatitis. Using female Wistar rats, i.p. injection of more than 200 mg galactosamine HCl/kg body weight led to an accumulation of galactosamine-1-phosphate with subsequent inhibition of galactosamine metabolism in the liver. Galactosamine-1-phosphate was slowly converted to UDP-galactosamine by UDPG:galactose-1-phosphate uridylyltransferase. Concentrations of galactosamine-1-phosphate found in livers of galactosamine-treated animals inhibited UDPG-pyrophosphorylase which caused a reduced rate of UDPG-synthesis. The galactosamine-1-phosphate accumulation was enhanced by the strongly reduced levels of UDPG. In the presence of the concentrations of galactosamine-1-phosphate and glucose-1-phosphate found *in vivo* after galactosamine treatment, UDPG-pyrophosphorylases from rat and calf liver are strongly inhibited *in vitro*. Galactosamine-1-phosphate counteracts its own conversion to UDP-galactosamine. The influence of the strongly diminished UDPG levels on the UDPG-linked syntheses of glycogen, heteropolysaccharides and glucuronides as well as the trapping of uridine phosphates by formation of UDP-hexosamines may play an important role in the induction of galactosamine hepatitis.

6588 AN EXPERIMENTAL STUDY OF SERUM ENZYMATIC ACTIVITIES IN DOGS WITH VARIOUS HEPATIC LESIONS. *(Jap.)* Wada, E. (Gifu U. Sch. Med., Japan). *Acta Sch Med Univ Gifu* 15(3):699-734, 1968.

Changes in SGOT, SGPT and LDH activity were studied in dogs with various hepatic lesions caused by different factors. In dogs with ligation of the hepatic artery there was an abrupt increase in SGPT activity as compared with the other serum enzyme activities. This was followed by a rapid return to normal values within 1 week after surgery. In dogs with ligation of the common bile duct the increase in serum enzyme activities was less than in dogs with ligation of the hepatic artery but the alterations persisted longer and normal values were not observed even 3 months after surgery. Eck's fistula (interruption of the portal blood flow) or constriction of the thoracic inferior vena cava elicited only minor alterations in serum enzyme activities. In dogs with traumatic injuries there was an abrupt increase in activities immediately due to a liberation of intrahepatic enzymes into the hepatic vein. These alterations were parallel to the extent of the hepatic injuries. In totally hepatectomized dogs a transient increase in serum enzyme activities during surgery was probably the result of the liberation of intrahepatic enzymes. A marked decrease was observed 30 min postoperatively which was followed by a gradual increase to the normal range. A functionally liverless dog, (with an ischemic liver), showed abruptly and continuously increased serum enzyme activity. No special relationship was observed between tissue and serum enzyme activities in the dogs with various hepatic lesions.

### 6589 LINKS BETWEEN ALBUMIN AND UNCONJUGATED BILIRUBIN. EXPERIMENTAL STUDY IN GUNN RATS.

*(Fr.)* Petite, J. P. (I. N. S. E. R. M., Paris, France), J. P. Etienne and E. Housset. *Biol Gastroent* 2:137-150, 1968.

A certain number of drugs and contrast media reduce unconjugated bilirubin in the blood. This almost immediate fall in serum bilirubin is lasting and probably the result of a breakdown in the links between unconjugated bilirubin and albumin; it is accompanied by an increase in tissue bilirubin and thus increases the risk of nuclear staining and neurological complications. The experiments analyzed here emphasize the extreme variability of blood levels of unconjugated bilirubin and the impossibility of making a valid determination of the risk of tissue staining in relation to the level of serum bilirubin. They also illustrate the advantages of experiments on Gunn rats in the investigation of links between albumin and unconjugated bilirubin. Using a simple, rapid and reliable experimental procedure, it is very easy to determine in this animal whether a given treatment can or cannot modify albumin-unconjugated bilirubin links and may thus be used without danger in the newborn exposed to the risk of icterus gravis neonatorium.

### 6590 PITUITARY HORMONES AND THE MECHANISM OF INDUCTION OF LIVER CANCER WITH *N*-HYDROXY-*N*-2-FLUORENYLACETAMIDE.

*(E.)* Weisburger, J. H. (NIH, Bethesda, Md.), S. R. Pai, R. S. Yamamoto, J. Korzis and E. K. Weisburger. *Israel J Med Sci* 4(6):1223-1229, 1968.

The effect of the carcinogen *N*-hydroxy-*N*-2-fluorenylacetamide (N-OH-FAA) on liver cancer induction in male and female rats has been shown to be enhanced by the simultaneous alteration of the level of pituitary hormones. The effect of increasing pituitary hormones after administration p.o. at 3 levels (80, 160 or 320 ppm) of N-OH-FAA for 8, 10 or 12-14 weeks was studied. The pituitary hormones were allowed to act for 10-13 weeks. In male rats the pituitary hormones exerted no pronounced effect, although in 1 series there was a slight enhancement and in another a slight reduction of liver tumor incidence. In female rats the effect was one of slight enhancement of the action of the carcinogen. The hormone seems to exert its action chiefly by affecting the metabolism of the carcinogen rather than by a typical endocrine-mediated effect on normal or abnormal liver cells.

### 6591 THE PREFERENTIAL BILIARY EXCRETION OF RIFAMYCINE SV, BILIRUBIN, AND BSP.

*(Fr.)* Smets, P. (Lab. Exp. Surg., U. Brussels, Belgium). *Rev Int Hepat* 18(1):41-54, 1968.

In 4 dogs temporary biliary fistulas were produced and rifamycine SV (10 mg/kg body weight) and/or BSP (5 mg/kg body weight) were injected i.v.. Rifamycin SV appeared in the bile 30 min after injection; its maximum concentration was between 4.2-8.5 mg/ml and the maximum flow between 16-29 mg/30 min; these maximum values were obtained mainly between 60-90 min, and always within 2 hr. The simultaneous injection of BSP did not modify the excretion of rifamycine SV. BSP, injected alone, appeared in the bile after 30 min; its maximum concentration was between 2.0-2.2 mg/liter and its maximum flow between 1.1-1.8 mg/30 min; all these values were obtained within 90 min. Simultaneous injection of rifamycine SV almost completely blocked BSP excretion; after 90 min there was no sign of BSP; the maximum concentration and flow were reached after 5 hr, with values between 0.4-1.6 mg/ml and 0.2-0.5 mg/30 min, resp. Bilirubin flow, without any injections, or with injection of BSP, was stable, ranging between 1.4-4.8 mg/30 min. Rifamycine SV, with or without BSP, significantly modified bilirubin flow, which decreased to 1.25 mg/30 min after 150 min.

### 6592 LACTIC ACID TOLERANCE TEST AS INDEX OF HEPATIC FUNCTION FOLLOWING COLD STORAGE.

*(Fr.)* Chapuis, Y. (Broussais Hosp., Paris, France), J. P. Lenriot, M. Clauvel de Mendonca, K. Schwartz and A. Turbatu. *Biol Gastroent* 2:151-162, 1968.

Dog livers were kept for 4-18 hr in deep hypothermia alone (14 livers) or associated with hyperbaric oxygenation (16 livers). Hepatic function was then tested during perfusion, using an extracorporeal circuit. Lactate increased during the rewarming process in all livers. Pyruvate decreased and was more evident in livers stored in hyperbaric oxygen. Na-lactate clearance was reduced with increased storage time. But livers stored for 18 hr showed adequate amounts of lactate and pyruvate activity so the metabolic alterations induced by storage are probably reversible. An increase in plasma glucose was always observed during perfusion and correlated to the decrease in liver glycogen. Hyperbaric oxygenation does not seem particularly useful for long-time liver storage.

**593 BILIRUBIN METABOLISM IN THE FETUS.** *(E.)* Bernstein, R. B. (Boston U. Sch. Med., Mass.), M. L. Novy, G. J. Piasecki, R. Lester and B. T. Jackson. *J Clin Invest* 48(9):1678-1688, 1969.

Bilirubin metabolism was studied in beagle dog and rhesus monkey fetuses. $^3$H-bilirubin was administered to fetal animals *n utero* by prolonged i.v. infusion. Fetal plasma disappearance, hepatic uptake, biliary excretion, and placental transfer of the radioactive bilirubin were measured. Bilirubin metabolism and excretion in the fetus was much less efficient than in the adult. Fetal plasma levels of tritium were elevated for prolonged periods, and the combined rate of placental and fetal hepatic excretion was lower than normal adult values. Species differences were also noted. Hepatic conjugation and excretion appeared to be the primary mechanism of fetal metabolism in the dog. In contrast, the amounts of conjugated $^3$H-bilirubin excreted in fetal monkey bile were negligible. Small amounts of $^3$H-labeled bilirubin derivatives were excreted in fetal bile, but 10 times as much of the administered material was transferred intact across the placenta and excreted by the maternal liver. The relationship of this functional difference to known anatomic and biochemical species differences is discussed. Preliminary observations on alternate routes of fetal bilirubin metabolism were obtained.

**6594 HEPATIC SEPSIS AFTER LIVER TRANSPLANTATION IN DOGS AND PIGS.** *(E.)* MacSween, R. N. M. (U. Colorado Sch. Med., Denver). *Arch Path (Chicago)* 88(2):166-170, 1969.

Histological features in mongrel dog and pig livers following sham operation, simulated liver auto-transplantation, and orthotopic hepatic homotransplantation, with and without immunosuppressive therapy, are reported. In sham operated animals, acute cholangitis was present in 2 of 10 canine livers and 4 of 9 porcine livers. Use of immunosuppressive agents did not increase this incidence. With simulated hepatic autotransplantation, 9 of 10 porcine livers showed acute cholangitis, and severity of infection was more marked after cholecystoduodenostomy than with intact common bile duct. In homotransplanted groups of animals, evidence of acute inflammation with or without features of rejection was present in 19 of 20 livers. Findings correlated closely with bacteriologic studies in the same animals, and emphasized the marked susceptibility of the liver to infection, even after minor procedures, let alone after major surgery of hepatic homotransplantation.

**6595 THE ISOLATED AND PERFUSED RAT LIVER. OBSERVATIONS ON MORPHOLOGICAL AND FUNCTIONAL CHANGES BY MEANS OF STUDYING BIOCHEMICAL AND BIOLOGICAL SYNDROMES.** *(It.)* Civardi, F. (Med. Clin. U. Milan, Italy), L. Tenconi, S. Procaccia, S. Negri and C. Santambrogio. *Minerva Med* 60(42):2087-2091, 1969.

The behavior of the isolated and perfused rat liver was studied from a physiopathological standpoint and the functional and pathological significance of the plasma biochemical disturbances (changes in liver serum enzymes, BSP and clearance values) which correspond to definite biological hepatic syndromes were analyzed. The perfused liver passes through various stages: mild partial cholestasis (second hr of perfusion), cytolytic hepatopathy with slight cholestasis (third hr) and necrobiotic hepatopathy with slight cholestasis (fourth-fifth hr).

**6596 DAILY RHYTHM OF LIVER TYROSINE TRANSAMINASE AND OF PLASMA TYROSINE AND GLUCOSE AFTER REMOVAL OF THE PANCREAS OF RATS.** *(E.)* Fuller, R. W. (Lilly Res. Lab., Eli Lilly & Co., Indianapolis, Ind.), G. T. Jones, H. D. Snoddy and I. H. Slater. *Life Sci* 8(13):685-691, 1969.

The pancreas was removed surgically from some Wistar rats, and intact rats served as controls. On the 1st and 3rd days after removal of the pancreas, the rats were treated with protamine zinc insulin suspension, 5 U/kg (s.c.). In spite of treatment, about ½ of the pancreatectomized rats died within a week. Measurements were made after 7-10 days. Liver tyrosine transaminase varied in a daily rhythm over about a 4-fold range in intact rats. Highest enzyme activity in this study was at midnight. In pancreatectomized rats a rhythm of almost identical magnitude was present, but with the highest activity about 6 hr earlier. Removal of the pancreas led to higher concentrations of tyrosine in plasma, but the variation over the 24-hr period was almost identical to that in intact rats. Removal of the pancreas led to elevated plasma glucose concentrations (indicating complete or nearly complete pancreas removal) and a pronounced daily rhythm in plasma glucose. There was no detectable rhythm in glucose in the intact rats. Pancreatic hormones do not seem to be essential for the daily rhythm of liver tyrosine transaminase present in rats fed *ad libitum.*

**6597 FINE-NEEDLE ASPIRATION BIOPSY OF THE LIVER IN HEALTHY ADULTS–ACTIVITY OF LYSOSOMAL HYDROLASES.** *(E.)* Lundguist, A. (U. Hosp. Lund, Sweden) and P. A. Öckerman. *Enzyme Biol Clin (Basel)* 10(4):300-304, 1969.

The activity of five lysosomal acid hydrolases, β-galactosidase (4.79 ± 3.29), β-acetylglucosaminidase (13.3 ± 5.49), β-glucoronidase (4.32 ± 1.76), acid phosphatase (22.0 ± 9.28), and α-mannosidase (5.18 ± 5.15), was measured in liver biopsy specimens, obtained with the fine-needle aspiration technique from 24 carefully selected, strictly normal adults. Higher activities were noted than earlier described in less strictly normal controls. The latter were given with wet weight as a reference, the present values are in μ moles of substrate/g protein.

**6598 PHOSPHOLIPID METABOLISM IN THE DEVELOPING LIVER. I. THE BIOSYNTHESIS OF CHOLINE GLYCEROPHOSPHATIDES BY LIVER SLICES FROM FETAL, NEWBORN AND ADULT RATS.** *(E.)* Weinhold, P. A. (Dept. Biol. Chem., U. Michigan, Ann Arbor). *Biochim Biophys Acta* 187(1):85-93, 1969.

The 2 main pathways of the biosynthesis of choline glycerophosphatides were assessed by studying the rates of incorporation of Me-$^{14}$C choline and Me-$^{14}$C methionine by liver slices from Holtzman fetal, neonatal and adult female rat liver. Over 96% of the lipid radioactivity from Me-$^{14}$C choline was located in choline glycerophosphatides. In adult liver slices 93% of the total lipid radioactivity from Me-$^{14}$C methionine was located in choline glycerophosphatides. An appreciable amount of radioactivity from Me-$^{14}$C methionine was incorporated into fatty acids by fetal liver slices. Liver slices from fetal rats incorporated the same amount of Me-$^{14}$C choline into lecithin as did adult liver slices except for a drop 2 days before birth. Liver slices from 3-day-old neonatal rats incorporated about twice as much Me-$^{14}$C choline as the adult liver slices. Liver slices from fetal and young rats incorporated about 8-10 times more Me-$^{14}$C choline into phosphoryl choline than did liver slices from adults. Adult levels were reached at 10 days after birth. The incorporation of radioactivity from Me-$^{14}$C methionine into lecithin by fetal liver slices was much lower than that by adult liver slices and increased to twice adult levels by 10-12 days after birth. Adult levels were reached by 25 days after birth. Studies with 1,2-$^{14}$C, Me-$^{3}$H choline indicated that the choline was incorporated intact and that little, if any, of the methyl groups of choline were used for the methylation of phosphatidyl ethanolamine.

6599 PHOSPHOLIPID SYNTHESIS IN RAT LIVER MITOCHONDRIA. *(E.)* Zborowski, J. (Nencki Inst. Exp. Biol., Warsaw, Poland) and L. Wojtczak. *Biochim Biophys Acta* 187(1):73-84, 1969.

Using isolated Wistar rat liver mitochondria it was confirmed that mitochondria are the main locus of the synthesis of phosphatidic acid. This synthesis occurs mainly, if not exclusively, in outer mitochondrial membranes. The phosphatidic acid may then be transformed into other lipid constituents in other intracellular compartments. The incorporation of glycerol 3-$^{32}$P-phosphate and $^{14}$C palmitic acid into mitochondrial lipids was measured. This incorporation was much higher in mitochondria than in microsomes. Maximum esterification was obtained with palmitic acid and was less pronounced with acids of shorter or longer carbon chains. Elaidic acid was inhibitory. ATP either added or generated intramitochondrially was required except in the presence of carnitine esters of long-chain fatty acids. With internally formed ATP, the synthesis of phosphatidic acid was inhibited by atractyloside but was unaffected by this glycoside with external ATP or with palmitoyl carnitine.

6600 PHOSPHOLIPID EXCHANGE REACTIONS WITHIN THE LIVER CELL. *(E.)* McMurray, W. C. (Inst. Anim. Physiol., Babraham, Cambridge, England) and R. M. C. Dawson. *Biochem J* 112(1):91-108, 1969.

Isolated Wistar rat liver mitochondria do not synthesize labeled phosphatidylcholine from CDP-($^{14}$C)choline or any phospholipid other than phosphatidic acid from $^{32}$P phosphate. The small mitochondrial synthesis of such phospholipids *in vitro* can be ascribed to contamination by microsomes. However, when mitochondria and microsomes are incubated together with $^{32}$P phosphate, the phospholipids of the reisolated mitochondria become labelled, suggesting a transfer. When liver microsomes or mitochondria containing labelled phospholipids are independently incubated with the opposite unlabelled fraction; there is a substantial and rapid exchange of phosphatidylcholanine and phosphatidylinositol, and slower exchange of phosphatidylethanolamine and phosphatidic acid. There is no corresponding transfer of marker enzymes. After i.v. injection of $^{32}$P phosphate, short-period labelling experiments of the individual phospholipids of rat liver microsomes and mitochondria *in vivo* do not show a similar exchange. The i.p. injection of $^{32}$P phosphate results in a far greater proportion of the dose entering the liver than does i.v. administration. After i.p. injection the specific radioactivities of the individual phospholipids are in the order microsomes greater than outer mitochondrial membrane greater than inner mitochondrial membrane. The incorporation of $^{32}$P into cardiolipin is very slow both *in vivo* and *in vitro*. Probably, in the phospholipid exchang processes occurring in the liver cell, only a small but highly labelled part of the endoplasmic-reticulum lipoprotein pool i involved in the transfer.

6601 ACETYL CoA LEVEL IN PERFUSED RAT LIVER DURING GLUCONEOGENESIS AND KETOGENESIS. *(E.)* Menahan, L. A. (Schwabinger Hosp., Munich, Germany), B. D. Ross and O. Wieland. *Biochem Biophys Res Commun* 30(1):38-44, 1968.

6602 STIMULATORY EFFECT OF PHENOBARBI ON THE METABOLISM *IN VIVO* OF ESTRA DIOL-17β AND ESTRONE IN THE RAT. *(E.)* Welch, R. (Wellcome Res. Lab., Tuckahoe, N. Y.), W. Levin and A. H. Conney. *J Pharmacol Exp Ther* 160(1):171-178, 1968.

6603 RAT LIVER LIPIDS: METABOLIC RELATIONS DERIVED FROM STRUCTURAL AN YSES OF NEUTRAL GLYCERIDES AND PHOSPHOGLYCERIDES. *(E.)* Wood, R. (Oak Ridge Natl. Lab., Tenn.) a R. D. Harlow. *Res Rept Med Div Oak Ridge Ass U* 107:18 185, 1968.

6604 SYSTEMATIC OSCILLATIONS IN TYROSIN TRANSAMINASE AND OTHER METABOLIC FUNCTIONS IN LIVER OF NORMAL AND ADRENALEC TOMIZED RATS ON CONTROLLED FEEDING SCHEDU *(E.)* Watanabe, M. (Med. Ctr., U. Wisconsin, Madison), V. Potter and H. C. Pitot. *J Nutr* 95(2):207-227, 1968.

6605 THE THERMOLABILITY OF NAD-DIAPHOR ISOENZYMES IN RAT LIVER. *(Rus.)* Levin F. B. (Inst. Human Morphol., Acad. Med. Sci. USSR, Mosco *Biull Eksp Biol Med* 65(2):47-49, 1968.

6606 THE EFFECT OF DIET AND VITAMIN E ON LIVER INJURY DUE TO CARBON TET CHLORIDE. *(E.)* McLean, A. E. M. (Med. Res. Counc., Carshalton, England). *J Exp Path* 48(4):632-636, 1967.

6607 STEROID INDUCTION OF PORPHYRIN SYN THESIS IN LIVER CELL CULTURE. *(E.)* Kappas, A. (Rockefeller U., New York, N. Y.) and S. Grani *Trans Ass Amer Physicians* 80:323-330, 1967.

6608 PARTIAL AND SUBTOTAL HEPATECTOMY IN THE RAT. THE APPARENT UN-MASKI OF A FACTOR INFLUENCING THE POST-OPERATIVE SPONSE. *(E.)* Woodward, E. (Royal Postgrad. Med. Sch., London, England). *J Exp Path* 48(4):644-654, 1967.

6609 CALCIUM REQUIREMENT OF LIVER SLIC *(E.)* McLaughlin, C. W. (Med. Res. Counc., N Zealand). *Proc U Otago Med Sch* 47(2):59-60, 1969.

6610 LIVER AND BROWN FAT MITOCHONDRIA RESPONSE TO COLD IN HIBERNATORS A NONHIBERNATORS. *(E.)* Liu, C. C. (Dept. Biol. Sci., Ill State U., Normal), J. L. Frehn and A. D. La Porta. *J Appl Physiol* 27(1):83-89, 1969.

611 BILIARY AND URINARY METABOLITES OF ESTRONE-6,7-$^{3}$H-SULFATE-$^{35}$S IN A WOMAN. *E.)* Jirku, H. (New York U. Sch. Med., N. Y.) and M. Levitz. *Clin Endocr* 29(5):615-637, 1969.

612 LIVER TRANSPLANTATION. *(Rev.)(E.)* Calne, R. Y. (U. Cambridge, England). *Brit J Iosp Med* 2(7):1271-1280, 1969.

613 EFFECT OF CITRATE ON ACYL-CoA SYNTHETASE OF RAT LIVER. *(E.)* Harada, T. Sch. Med., Tokushima U., Japan), H. Okuda and S. Fujii. *Biochem* 65(4):497-501, 1969.

614 INABILITY OF FETAL LIVER TO SYNTHESIZE PLASMA PHOSPHOLIPIDS. *(E.)* iezenski, J. J. (Downstate Med. Ctr., Brooklyn, N. Y.) and . Kimmel. *Proc Soc Exp Biol Med* 130(4):1238-1241, 1969.

615 HEPATIC LIPID METABOLISM IN ALLOXAN DIABETIC RATS. *(E.)* Corder, C. N. (Milwaukee ounty Gen. Hosp., Wis.) and R. K. Kalkhoff. *J Lab Clin Ied* 73(4):551-563, 1969.

616 INTERACTIONS OF GLUCAGON AND INSULIN ON THE METABOLISM OF PERFUSED IVERS FROM FASTED RATS. *(E.)* Menahan, L. A. Schwabing-Munich Munic. Hosp., Germany) and O. Wieland. *urop J Biochem* 9(1):55-62, 1969.

617 EFFECT OF HEPARIN, PROTAMINE SULFATE AND ANTIGEN ON HISTAMINASE (DIAMINE XYDASE) ACTIVITY OF THE GUINEA PIG LIVER. *(E.)* Iahn, F. (Inst. Pharmacol., U. Freiburg, Germany) and E. Ieszaros. *Arch Int Pharmacodyn* 180(1):195-205, 1969.

618 GLUCAGON AND EPINEPHRINE RESPONSIVE ADENYL CYCLASE ACTIVITY IN REGENERATNG RAT LIVER. *(E.)* Becker, F. F. (New York U. Sch. Ied., N. Y.) and M. W. Bitensky. *Proc Soc Exp Biol Med* 130(3):983-986, 1969.

619 EFFECT OF COLD EXPOSURE AND ACTH ON RNA, DNA AND PROTEIN CONTENT IN DRENAL AND LIVER OF RATS AND GROUND QUIRRELS. *(E.)* Petrović, V. M. (Inst. Biol. Res., Belgrade, Yugoslavia) and O. Rajčić. *Fed Proc* 28(3):1247-1250, 1969.

620 STUDIES ON PLASMA MEMBRANES. IX. A SURVEY OF ENZYME ACTIVITIES DISPLAYED BY PLASMA MEMBRANES ISOLATED FROM NORMAL AND PRENEOPLASTIC LIVERS AND PRIMARY AND TRANSPLANTED HEPATOMAS OF THE RAT. *(E.)* Emmelot, P. (Netherlands Cancer Inst., Amsterdam) and C. J. Bos. *Int J Cancer* 4(5):705-722, 1969.

6621 STUDIES ON PLASMA MEMBRANES. X. A SURVEY OF ENZYME ACTIVITIES DISPLAYED BY PLASMA MEMBRANES ISOLATED FROM MOUSE LIVER AND THREE MOUSE HEPATOMA STRAINS. *(E.)* Emmelot, P. (Netherlands Cancer Inst., Amsterdam) and C. J. Bos. *Int J Cancer* 4(5):723-734, 1969.

6622 SEPARATION OF DNA POLYMERASE FROM RAT LIVER AND HEPATOMAS. *(E.)* Ove, P. (VA Hosp., Durham, N. C.), O. E. Brown and J. Laszlo. *Cancer Res* 29(8):1562-1567, 1969.

6623 ELECTRON PARAMAGNETIC RESONANCE STUDY OF BOVINE LIVER CATALASE. *(E.)* Torii, K. (Fac. Sci., Tokyo U., Bunkyo-ku, Japan) and Y. Ogura. *J Biochem (Tokyo)* 65(5):825-827, 1969.

6624 INCREASED DNA POLYMERASE ACTIVITY IN A SERIES OF RAT HEPATOMAS. *(E.)* Ove, P. (VA Hosp., Durham, N. C.), J. Laszlo, M. D. Jenkins and H. P. Morris. *Cancer Res* 29(8):1557-1561, 1969.

6625 RHYTHMIC CHANGES OF HYDROXYMETHYLGLUTARYL COENZYME A REDUCTASE ACTIVITY IN LIVERS OF FED AND FASTED RATS. *(E.)* Hambrecht, B. (Chem. Lab., U. Munich, Germany), C. Nüssler and F. Lynen. *Febs Letters* 4(2):117-121, 1969.

6626 ACTION OF SOME ANTIBIOTICS ON THE EXTRA-HEPATIC BILIARY TRACT. V. AMINOSIDIN. *(E.)* Benzi, G. (Dept. Pharmacol., U. Pavia, Italy), A. Crema, F. Berte, G. M. Frigo and E. Arrigoni. *Arch Int Pharmacodyn* 177(1):140-149, 1969.

6627 CONTROL MECHANISMS OF GLUCONEOGENESIS AND KETOGENESIS. I. EFFECTS OF OLEATE ON GLUCONEOGENESIS IN PERFUSED RAT LIVER. *(E.)* Williamson, J. R. (Johnson Res. Found., U. Pennsylvania, Philadelphia), E. T. Browning and R. Scholz. *J Biol Chem* 244(17):4607-4616, 1969.

6628 CONTROL MECHANISMS OF GLUCONEOGENESIS AND KETOGENESIS. II. INTERACTIONS BETWEEN FATTY ACID OXIDATION AND THE CITRIC ACID CYCLE IN PERFUSED RAT LIVER. *(E.)* Williamson, J. R. (Johnson Res. Found., U. Pennsylvania, Philadelphia), R. Scholz and E. T. Browning. *J Biol Chem* 244(17):4617-4627, 1969.

6629 INHIBITION OF HEPATIC GLUCONEOGENESIS BY ETHANOL. *(E.)* Krebs, H. A. (Radcliffe Infirm., U. Oxford, England), R. A. Freedland, R. Hems and M. Stubbs. *Biochem J* 112(1):117-124, 1969.

6630 STUDIES ON THE BIOSYNTHETIC PATHWAY OF POLYAMINES IN RAT LIVER. *(Rev.)(E.)* Jänne, J. (Dept. Med. Chem., U. Helsinki, Finland). *Acta Physiol Scand* Suppl 300, 1-71, 1967.

6631 CHANGES IN THE SIZE AND MITOTIC ACTIVITY OF CELLS IN REGENERATING MOUSE LIVER AFTER ADMINISTRATION OF DEOXYRIBONUCLEOPROTEINS AND DNA, ISOLATED FROM REGENERATING RABBIT LIVER. *(Rus.)* Iashina, I. N. (Inst. Exp. Biol., Moscow, USSR). *Biull Eksp Biol Med* 64(9):90-92, 1967.

6632 **PERFUSION OF THE ISOLATED LIVER: MEASUREMENT OF ITS FUNCTIONAL TOLERABILITY THROUGH A STUDY OF SPECIFIC METABOLIC CHANGES.** *(It.)* Procaccia, S. (Dept. Med., U. Milan, Italy), C. Santambrogio, S. Negri, L. Tenconi, U. Samaia and N. Massari. *Minerva Med* 60(65/66):3013-3017, 1969.

6633 **REGULATION OF THE LEVEL OF KEY ENZYMES OF GLYCOLYSIS AND GLUCONEOGENESIS IN LIVER.** *(E.)* Sillero, A. (Ctr. Biol. Res., Madrid, Spain), M. A. G. Sillero and A. Sols. *Europ J Biochem* 10(2):351-354, 1969.

6634 **HORMONAL REGULATION OF AMINOPYRINE N-DEMETHYLASE SYSTEM IN RAT LIVER.** *(E.)* Ichii, S. (Natl. Inst. Radiol. Sci., Chiba, Japan) and N. Yago. *J Biochem Tokyo* 65(4):597-601, 1969.

6635 **TIME COURSE OF INCORPORATION OF $^{14}$C-FORMATE, A NUCLEIC ACID PRECURSOR, IN MOUSE LIVER CELLS.** *(E.)* Dhindsa, K. S. (Dept. Biol., Loyola Montreal, Canada). *Indian J Exp Biol* 7(2):84-85, 1969.

6636 **STUDIES ON REGULATORY ASPECTS OF NUTRITION AT MOLECULAR LEVEL. II. ENZYME TURNOVER DURING PROTEIN DEFICIENCY.** *(E.)* Rechcigl, M. (NIH, Bethesda, Md.). *Nutr Dieta (Basel)* 11(3):214-227, 1969.

6637 **ALTERATIONS IN THE ACTIVITIES OF SEVERAL RAT LIVER ENZYMES AT VARIOUS TIMES AFTER THE FEEDING OF HIGH CARBOHYDRATE DIETS TO RATS PREVIOUSLY ADAPTED TO A HIGH PROTEIN REGIMEN.** *(E.)* Szepesi, B. (Sch. Vet. Med., U. California, Davis) and R. A. Freedland. *J Nutr* 94(1):37-46, 1968.

6638 **DIALYSIS STUDIES OF LIVER ZINC IN ZINC-DEFICIENT AND CONTROL RATS.** *(E.)* Becker, W. M. (Dept. Biochem., U. Wisconsin, Madison) and W. G. Hoekstra. *J Nutr* 94(4):455-462, 1968.

6639 **LDH ISOZYMES DURING EARLY HEPATIC REGENERATION.** *(E.)* Thaler, M. M. (Harvard Med. Sch., Boston, Mass.), R. P. Francesconi and C. A. Villee. *Life Sci* 7(4):175-180, 1968.

6640 **DIET-DEPENDENCE OF RAT LIVER GLUCOSE 6-PHOSPHATE DEHYDROGENASE LEVELS.** *(E.)* Sassoon, H. F. (Oklahoma Med. Res. Found., Oklahoma City), J. Watson and B. C. Johnson. *J Nutr* 94(1):52-56, 1968.

6641 **TIME-COURSE OF CHANGES IN RAT LIVER ENZYME ACTIVITIES AFTER INITIATION OF A HIGH PROTEIN REGIMEN.** *(E.)* Szepesi, B. (Dept. Vet. Med., U. California, Davis) and R. A. Freedland. *J Nutr* 94(4):463-468, 1968.

6642 **EFFECT OF FEEDING DL-ETHIONINE ON THE POLYUNSATURATED FATTY ACIDS OF RAT LIVER PHOSPHOLIPIDS.** *(E.)* Lyman, R. L. (Dept. Nutrit. Sci., U. California, Berkeley), M. A. Fosmire, C. Giotas and P. Miljanich. *J Nutr* 94(1):74-82, 1968.

6643 **EFFECTS OF CHRONIC ETHANOL CONSUMPTION ON THE CLEARANCE OF ACUTE ADMINISTERED ETHANOL AND ACETALDEHYDE FROM BLOOD IN RATS.** *(E.)* Majchrowicz, E. (U. North Carolina Sch. Med., Chapel Hill), M. A. Lipton, J. L. Meek and L. Hall. *Quart J Stud Alcohol* 29(3):553-557, 1968.

6644 **HEPATIC RESECTION. [CASE REPORT]** *(E.* Balasegaram, M. (Gen. Hosp., Seremban, Malaysia *Brit J Surg* 55(3):168-174, 1968.

6645 **THE DISTURBANCE OF BILIRUBIN METABOLISM BY MALE FERN EXTRACT.** *(E.)* Nosslin, B. (Gen. Hosp., Malmö, Sweden). Pp. 73-78 in *Ikteru* International Symposium 27-29. October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

6646 **CHANGE IN PROTEIN SYNTHESIS IN THE RAT LIVER AFTER EXPERIMENTAL DAMAG PRODUCED BY $CCl_4$.** *(Ger.)* Richter, G. (Dept. Biochem., Humboldt U., Berlin, Germany), S. Michel and H. Rupprecht. *Acta Biol Med German* 21(5):595-602, 1968.

6647 **CORTISONE INDUCTION OF TRYPTOPHAN PYRROLASE IN A REGENERATING RAT LIVER.** *(Rus.)* Chestukhin, A. V. (Inst. Chem. Natural Products, Acad. Sci. USSR, Moscow). *Biokhimiia* 33(2):310-313, 1968.

6648 **EFFECT OF AFLATOXIN ON TRANSCRIPTION IN LIVER CELL.** *(E.)* Moulé, Y. (Ctr. Res. Normal Cancerous Cells, Villejuif, France) and C. Frayssinet. *Nature* 218(5136):93-95, 1968.

6649 **CHANGE IN THE BOUND ASCORBIC ACID CONTENT OF MUSCLE AND LIVER OF RAT IN RELATION TO AGE.** *(E.)* Patnaik, B. K. (Regional Coll. Ed., Orissa, India). *Nature* 218(5139):393, 1968.

6650 **THE EFFECTS OF COENZYME A AND PANT THENIC ACID ON THE GLYCOGEN SYNTHETASE OF THE RAT LIVER.** *(Fr.)* Phan Hoang Huan (Fac. Sci., Paris, France) and Le Van Hung. *Arch Sci Physiol (Paris* 22(3):377-390, 1968.

6651 **OROTIC ACID AND LIVER REGENERATION AFTER PARTIAL HEPATECTOMY IN THE RAT.** *(Fr.)* Lafille, C. (Paris, France), A. Charbonnier, P. Rousselot and M. Cachin. *Rev Int Hepat* 17(5):429-448, 196

6652 **THE EFFECT OF KRAKOW SULPHUR WATE ON LIVER FUNCTION.** *(Pol.)* Rokicki, W. (Acad. Med., Krakow, Poland) and P. Gutkowski. *Przegl Lek* 24(2):326-327, 1968.

6653 **THE CONTENT OF CERTAIN VITAMINS IN THE LIVER AFTER ADMINISTRATION OF**

**SULPHUR WATER FROM THE MATECZNY II SPRING IN KRAKOW.** *(Pol.)* Mach, Z. (Acad. Med. Krakow, Poland). *Przegl Lek* 24(2):328-330, 1968.

6654 **STERO-BILE ACIDS AND BILE ALCOHOLS. XCIV. SYNTHESIS OF ALLOCHENODEOXYCHOLIC ACID.** *(E.)* Hoshita, T. (Hiroshima U. Sch. Med., Japan), K. Amimoto, T. Nakagawa and T. Kazuno. *J Biochem (Tokyo)* 61(6):750-755, 1967.

6655 **STERO-BILE ACIDS AND BILE ALCOHOLS. XCV. SYNTHESIS OF 3α,7α,12α-TRIHYDROXY-5β-CHOLESTANE-24-CARBOXYLIC ACID AND THE CHEMIDAL STRUCTURE OF TRIHYDROXYBUFOSTEROCHOLENIC ACID ISOLATED FROM TOAD BILE.** *(E.)* Hoshita, T. (Hiroshima U. Sch. Med., Japan), K. Okuda and T. Kazuno. *J Biochem (Tokyo)* 61(6):756-759, 1967.

6656 **STERO-BILE ACIDS AND BILE ALCOHOLS. IXC. FATE OF THE 4β-HYDROGEN OF CHOLESTEROL DURING THE BIOGENESIS OF 5α-BILE ALCOHOLS.** *(E.)* Hoshita, T. (Hiroshima U. Sch. Med., Japan). *J Biochem (Tokyo)* 61(5):633-635, 1967.

6657 **IRON METABOLISM IN LIVER DISEASE.** *(E.)* Brodanová, M. (Fac. Gen. Med., Charles U., Prague, Czechoslovakia) and V. Hoenig. *Rev Czech Med* 14(1):1-14, 1967.

6658 **REGULATION OF PROTEIN SYNTHESIS IN MOUSE LIVER BY STEROID HORMONES.** *(E.)* Koike, K. (Tohoku U. Sch. Med., Sendai, Japan), T. Otaka and S. Okui. *J Biochem (Tokyo)* 61(6):679-686, 1967.

6659 **GLUCOSE-6-PHOSPHATE DEHYDROGENASE FROM RAT LIVER. I. CRYSTALLIZATION AND PROPERTIES.** *(E.)* Matsuda, T. (Osaka U. Med. Sch., Japan) and Y. Yugari. *J Biochem (Tokyo)* 61(5):535-540, 1967.

6660 **GLUCOSE-6-PHOSPHATE DEHYDROGENASE FROM RAT LIVER. II. EFFECT OF DIET ON ENZYME ACTIVITY *IN VIVO* AND INHIBITION BY LONG CHAIN FATTY ACIDS *IN VITRO*.** *(E.)* Yugari, Y. (Osaka U. Med. Sch., Japan) and T. Matsuda. *J Biochem (Tokyo)* 61(5):541-549, 1967.

6661 **METABOLISM OF $^{35}$S-CYSTINE IN THE LIVER OF MICE FED ON LOW PROTEIN DIET CONTAINING LUTEOSKYRIN.** *(E.)* Moorooka, N. (Natl. Inst. Hlth., Tokyo, Japan), N. Nakano, N. Uchida and A. Takase. *Jap J Med Sci Biol* 20(6):501-504, 1967.

6662 **BILIRUBIN CONJUGATION AND EXCRETION CAPACITY OF LIVER.** *(E.)* Yalcin, S. Pp. 56-57 in *Ikterus.* International Symposium 27-29. October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

6663 **METABOLISM OF TAUROBILIRUBIN.** *(E.)* Jirsa, M. (U. Med. Clin., Prague, Czechoslovakia). Pp. 63 in *Ikterus.* International Symposium 27-29. October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

6664 **PURIFICATION AND PROPERTIES OF LIVER ACID PHOSPHATASE HYDROLYZING GLUCOSE 1,6-DIPHOSPHATE.** *(E.)* Hashimoto, T. (Fac. Med., U. Tokyo, Japan) and H. Yoshikawa. *J Biochem (Tokyo)* 61(6):760-767, 1967.

6665 **AN INQUIRY INTO THE TREPHOCYTIC FUNCTION OF THYMUS LYMPHOID CELLS IN LIVER REGENERATION.** *(E.)* Linna, T. J. (Fac. Med., U. Uppsala, Sweden). *Acta Path Microbiol Scand* 71(1):68-78, 1967.

See also: 6404,6410,6424,6432,6707,7056,7231,7236,7253,7270,7275,7279,
7284,7366,7368,7370,7378,7391,7442,7455,7457,7464,7466,7485

### 6666 RADIOSENSITIVITY OF THE LYMPHOCYTES WITHIN THE GUT EPITHELIUM. *(E.)*

Fichtelius, K. E. (Inst. Human Anat. U. Uppsala, Sweden). *Acta Path Microbiol Scand* 75(1):27-32, 1969.

The radiosensitivity of small-intestine mucosal lymphocytes (here called theliolymphocytes) in 100 day-old-BCF mice given 300 r and labelled with 300 r and labelled with $^3$H-thymidine at different times is reported. The normal number of such lymphocytes appears to be less than 200/2000 epithelial nuclei. Theliolymphocytes on the whole are radiosensitive in the same way as blood lymphocytes. The main part of the unknown source of theliolymphocytes seems to be radioresistant. The DNA-synthetizing part of this source seems to be radiosensitive.

### 6667 THE OXIDATIVE ENZYMES IN THE WALL OF THE SMALL AND LARGE INTESTINE OF YOUNG RATS DURING POSTNATAL DEVELOPMENT. *(E.)*

Kubat, K. (Inst. Physiol., Czechoslovakian Acad. Sci., Prague) and O. Koldovsky. *Acta Histochem (Jena)* 33(1):75-85, 1969.

In cryostat sections from the jejunum (J), ileum (I), cecum (C) and rectum (R) of white Wistar rats aged 1, 4, 10, 14, 21 and 31 days the following enzymes were demonstrated: G6PDH, 6-phosphogluconate dehydrogenase (6PGDH), isocitrate dehydrogenase (ICDH), α-glycerophosphate dehydrogenase (aGPDH), β-hydroxybutyrate dehydrogenase (bHBDH), glutamine dehydrogenase (GDH), malate dehydrogenase (MDH), LDH, monamine oxidase (MAO), succinate dehydrogenase (SDH) and NADHd. According to the activity in the enterocytes they were divided into two groups: 1) the enzyme activity increases a) from the minimal to very intensive–G6PDH, 6PGDH, and b) from relatively high to very intensive–ICDH, SDH, GDH, MAO; 2) Activity is found to be high already the day after birth and does not change during postnatal development–MDH, aGPDH, LDH, bHBDH, NADHd. The findings in J, I, C, and R were similar. Activity is most pronounced in the enterocytes of the mucosa surface and the adjacent parts of the intestinal glands, it decreases to the deep parts of the mucosa. Nevertheless, irrespective of what part of the intestine is examined, this zonation may sporadically be inversed or the activity may be equal throughout the mucosa. The supranuclear activity in J, I, and C was more intensive than the infranuclear. All the enzymes examined may be found in the myenteric ganglion cells and in the smooth muscle cells of the muscular layers and of the vascular walls. Weak or variable enzymic activity has been found in the connective tissue cells, lymphadenoid tissue, nerve fibres and in the mesothelial cells. The increasing activity may provide evidence for the intensifying metabolic reactions of the pentose shunt and Krebs' citric acid cycle, and, for the intensive glycolysis after birth.

### 6668 TIME RESPONSE OF HUMAN JEJUNAL GLYCOLYTIC ENZYMES TO A HIGH SUCROSE DIET. *(E.)*

Rosensweig, N. S. (Fitzsimons Gen. Hosp., Denver, Colo.), F. B. Stifel, D. Zakim and R. H. Herman. *Gastroenterology* 57(2):143-146, 1969.

To determine the time required for the adaptive changes in human jejunal glycolytic enzyme activity, 3 volunteers were fed isocaloric diets (2800-calorie liquid diets for 17 days) in which the carbohydrate either was entirely glucose (during the first 9 days 60% of the total calories were glucose) or sucrose (during the last 8 days 60% of the total calories were sucrose) or was absent (25% protein, 75% fat, consumed by the subjects for 1, 2, and 9 days, resp.). When the dietary carbohydrate was changed, the time for the change in enzyme activity was 1 day or less for all of the glycolytic enzymes studied. This time response differs from the 2- to 5-day response of disaccharidase activity and suggests that, for the glycolytic enzymes, the dietary effect is directly on the villus epithelial cell and not primarily at the crypt cell level. There appear to be, then, at least 2 types of adaptive responses to diet in the human jejunum. First, there is a direct response of the glycolytic enzymes of each epithelial cell to changes in the diet. Second, there is a delayed adaptive response of disaccharidase activity which probably acts via the crypt cell and intestinal cell turnover.

### 6669 SURFACE SUGAR IN THE INTESTINE. *(E.)*

Forstner, G. G. (Toronto Western Hosp., Canada). *Amer J Med Sci* 258(3):172-180, 1969.

Small intestinal surface polysaccharides labeled by the precursor hexosamine $^{14}$C-1-glucosamine could be isolated *in vitro* attached to microvillus membranes. Kinetic data obtained by analysis of mucosal subfractions at varying time intervals after administration of $^{14}$C-1-glucosamine supported the autoradiographic interpretation that surface polysaccharides are continuously synthesized intracellularly, probably within the golgi apparatus, and turned over within the lifetime of the cell. Mature absorptive cells synthesize polysaccharide as actively as crypt cells. Transfer from the golgi apparatus to the surface membrane may occur via an intravesicular route which passes through the terminal web to the base of microvillus clefts. Surface polysaccharides are probably glycoproteins rather than acid mucopolysaccharides. They may be involved in the preabsorptive binding, or filtering of intestinal solutes, and may form a protective mucosal barrier against the external environment.

### 6670 INFLUENCE OF PANTOTHENIC ACID AND OF COENZYME A ON THE JEJUNAL ABSORPTION OF GLUCOSE. *(Fr.)*

Phan Hoang Huan (Sci. Inst., Paris, France) and Le Van Hung. *Arch Sci Physiol (Paris)* 22(2):183-194, 1968.

The intestinal absorption of glucose (4%) in the rat, by perfusion *in vivo* of the jejunum, in the presence of pantothenic acid (1 mg/ml) or of its biologically active derivative, coenzyme A (0.02 mg/ml), was studied. After 4 hr of perfusion the jejunal absorption of glucose in the rat with a temporary Thiry-Vella fistula was 375 mg; when coenzyme A was associated with glucose, the absorption was 344 mg, and, if pantothenic acid was added to glucose, 475 mg. In the rat with a permanent Thiry-Vella fistula the average absorption values were: 374 mg if glucose alone was perfused; 362 mg if glucose and coenzyme A; and 481 mg if glucose and pantothenic acid were perfused. Jejunal perfusion with a solution of glucose caused an increase of glycemia to 137% of normal values; associated with coenzyme A caused an increase of 60%, and associated with pantothenic acid of 280%. Hepatic glycogen, from a value of 1800 μg/100 mg liver in the normal rat, increased to 3748, 3800 and 5446 μg/100 mg, liver resp., after perfusion with glucose alone, with glucose associated with coenzyme A, and associated with pantothenic acid.

6671 **DISACCHARIDASE ACTIVITY IN THE SMALL INTESTINE OF THE DEVELOPING CHICK.** *(E.)* Karrer, O. (Dept. Biochem., U. Oxford, England) and D. S. Parsons. *Life Sci* 7(2):85-89, 1968.

6672 **THE DISTRIBUTION OF CERTAIN ENZYMES IN NORMAL MUCOSA OF THE HUMAN SMALL INTESTINE.** *(E.)* Jonek, J. (Silesian Med. Acad., Zabrze, Poland) and Z. Kalina. *Pol Med J* 7(3):677-682, 1968.

6673 **INTESTINAL SUCRASE DEFICIENCY.** *(E.)* Peterson, M. L. (St. Louis, Mo.) and R. Herber. *Trans Ass Amer Physicians* 80:275-283, 1967.

6674 **STUDIES ON INTESTINAL DIGESTION IN THE SHEEP. 2. DIGESTION OF SOME CARBOHYDRATE CONSTITUENTS IN HAY, CEREAL AND HAY-CEREAL RATIONS.** *(E.)* Macrae, J. C. (Dept. Agric. Biochem., U. Newcastle upon Tyne, England) and D. G. Armstrong. *Brit J Nutr* 23(2):377-387, 1969.

6675 **EVIDENCE FOR REDUCTION AND METHYLATION OF FOLATE IN THE INTESTINE DURING NORMAL ABSORPTION.** *(E.)* Chanarin, I. (St. Mary's Hosp., London, England) and J. Perry. *Lancet* 2(7624):776-778, 1969.

6676 **SULFATED GLYCOPEPTIDES AND GLYCOSAMINOGLYCAN PEPTIDES ISOLATED FROM INTESTINAL MUCOSAE OF RABBIT.** *(E.)* Nemoto, T. (Tohoku U. Sch. Med., Sendai, Japan) and Z. Yosizawa. *Biochim Biophys Acta* 192(1):37-48, 1969.

6677 **ZINC DEFICIENCY IN THE RAT: EFFECT ON SERUM AND INTESTINAL ALKALINE PHOSPHATASE ACTIVITIES.** *(E.)* Luecke, R. W. (Dept. Biochem., Michigan State U., East Lansing), M. E. Olman and B. V. Baltzer. *J Nutr* 94(2):344-350, 1968.

6678 **INTESTINAL ENZYMES.** *(Sp.)* Freytes, M. A. *Rev Esp Enferm Apar Dig* 27(4):604-610, 1968.

6679 **OXIDATION OF N-HEXADECANE BY SUBCELLULAR PREPARATIONS OF GUINEA PIG SMALL INTESTINE.** *(E.)* Mitchell, M. P. (U. Birmingham, Ala.) and G. Hübscher. *Europ J Biochem* 7(1):90-118, 1968.

6680 **ROLE OF INTESTINAL MICROFLORA IN THE DEGRADATION OF DDT BY RAINBOW TROUT.** *(SALMO GAIRDNERI).* *(E.)* Wedemeyer, G. (Pesticide Res. Lab., Columbia, Mo.). *Life Sci* 7(3):219-223, 1968.

See also: 6471,6472,6503,6576,6966,7076,7106,7660

## GENERAL

**6681** **CARBON DIOXIDE TENSIONS IN THE PROXIMAL PART OF THE CANINE GASTRO-INTESTINAL TRACT.** *(E.)* Rune, S. J. (Rigshospitalet, Copenhagen, Denmark) and F. W. Henriksen. *Gastroenterology* 56(4):758-762, 1969.

The $PCO_2$ was measured *in situ* in 4 mongrel dogs (weighing 17.0-26.5 kg) by means of $PCO_2$ electrodes inserted through cannulas in the stomach; in the first, second, and third part of the duodenum; and in the proximal 25 cm of the jejunum. High carbon dioxide tensions were found in all 3 parts of the duodenum especially in the second part where fasting values were around 300 mm Hg, increasing after feeding to more than 500 mm Hg. The $PCO_2$ in the proximal part of the jejunum was in all cases lower than the tension found in the duodenum. The gastric $PCO_2$ was about 85 mm Hg in the fasting state and an increase up to 175 mm Hg was observed after feeding. The origin of the carbon dioxide as well as some possible physiological implications of the duodenal $PCO_2$ are discussed. The pH endpoint for the intraduodenal titration of gastric acid by pancreatic bicarbonate approximates 4.0.

**6682** **THE HEMODYNAMIC BISECTION OF THE LIVER.** *(E.)* Kaplan, A. (VA Hosp., Kansas City, Mo.), J. I. Davies, M. Field and S. Lucas. *Surgery* 66(2):357-367, 1969.

The functional separation of the portal and systemic circulations was investigated in 72 dogs who were monitored for various blood pressure measurements before and after one half received Arfonad and the other half received Piressin. After either Arfonad or Pitressin administration, 10 $\mu$C $^{131}$I was given into the hepatic artery compartment. An average of 1.25 mg Arfonad was required to substantially reduce mean systemic blood pressure and 12.5 U of Pitressin was the average dose needed to reduce portal vein mean pressure. When $^{131}$I was injected after the administration of Piressin, the greatest activity was observed in blood samples taken from the wedge hepatic vein. Less radioactivity was demonstrated in samples taken from the sinusoid, although the isotope reached these sites almost simultaneously. The blood taken from the femoral vein showed the least amount of isotope. When $^{131}$I was injected after Arfonad administration, a high level of activity was observed in the blood from the sinusoids, with a lesser amount picked up from the wedge hepatic vein and even less in the femoral. In all the experiments, the sinusoids only reacted to and followed the portal pressure with complete disregard for any flow or pressure changes in the hepatic artery compartment. The sinusoids act as a "bleed off" site for a marked elevation of portal pressure, resulting in a distinct increase in lymph flow. An autonomous hemodynamic-regulating system for both the portal and hepatic artery compartments may exist within the liver and, although functionally integrated, they have their individual rheological pathways of adjustment.

**6683** **A STUDY OF SHOCK IN SUPERIOR MESENTERIC ARTERY OCCLUSION.** *(E.)* Bhatnagar, B. N. S. (Coll. Med. Sci., Banaras Hindu U., Varanasi, India) and K. N. Udupa. *Indian J Surg* 31(2):103-109, 1969.

Forty dogs were used to develop a model of irreversible shock through the use of superior mesenteric artery occlusion. A snare installed during operation was tightened to occlude the artery completely, but could be released later without opening the abdomen. Eight groups of 5 dogs each were used: controls, 1, 2, 3, 4, 5, 6 hr, and permanent occlusion. Following tightening of the snare there was always a fall in blood pressure of 10-14 mm Hg over the next 15 min, and this trend continued for 90-120 min. If the snare was not released the blood pressure tended to recover and reached near normal levels. However, if the clamp was released there was an immediate fall of blood pressure, the gradient depending upon the duration of the preceding occlusion; from 4 mm Hg after 1 hr occlusion up to a fall of 50-60 mm Hg following 5 or 6 hr occlusion. The survival rate after 1 hr occlusion was 100%; 2 hr - 80%, 3 hr - 60%, 4 hr - 20%. All the dogs with 5 and 6 hr and permanent occlusion died. A 5 hr occlusion of the superior mesenteric artery followed by release gives a reliable model for study of intestinal factor in irreversibility of shock. This type of shock resembles hemorrhagic and endotoxin shock in many respects. Occlusion for lesser periods may produce irreversible shock in some but is unreliable for scientific studies. For reversible shock 1 hr occlusion and release is recommended.

**6684** **INTRAHEPATIC VASCULAR PATHWAYS IN THE ISOLATED PERFUSED NORMAL HUMAN LIVER WITH SPECIAL REFERENCE TO ARTERIOPORTAL SHUNT.** *(E.)* Geumei, A. M. (Fac. Med., Alexandria U., Egypt). *Surgery* 66(2):319-324, 1969.

To study intrahepatic vascular pathways, 10 normal human livers with no trace of hepatic disease were isolated 2 hr after death and perfused with oxygenated Tyrode's solution via the hepatic artery and the portal vein. Studies of the hepatic arterial flow showed that a part of it is shunted into the portal venous system. The portal venous blood is mainly arteriovenous. The parenchymal cells of the liver are supplied by the arterial blood. Even under high venous pressure, portal venous blood had no access to the arterial system. A unidirectional arterioportal shunt of varying diameter was present in the majority of the normal human livers studied. In 10% of the livers, this anastomosis was not acting. This was confirmed by an angiographic study in which no retrograde filling of the portal vein was observed after intra-arterial injection of the radiopaque material.

**6685** **HEPATO-PORTAL HEMODYNAMICS IN THE COURSE OF EXPERIMENTAL HEMORRHAGIC SHOCK. I. CHANGES INDUCED BY RESTORATION OF VOLUME WITH BLOOD, BLOOD AND RINGER-LACTATE, POLYVINYLPYRROLIDONE (PVP) AND LOW MOLECULAR WEIGHT DEXTRAN (LMWD).** *(It.)* Foti, F. (Inst. Gen. Surg., U. Catania, Italy), A. di Benedetto, S. Busso, P. Banna, S. Bonfiglio, E. Cirino and A. Russo. *G Ital Chir* 24(5):753-769, 1968.

The hemodynamic changes (pressure and flow) of the hepatoportal circulation were studied during experimental hemorrhagic shock and after restoration of volume with blood, polyvinylpyrrolidone (PVP), blood plus Ringer-lactate or low molecular weight dextran (LMWD). Reduction of the circulating blood mass resulted in a decrease of portal pressure and of pressure in the suprahepatic veins lower than that observed at the systemic level. Other factors evaluated, hepatic blood flow and the extraction index, showed fewer overlapping changes among themselves 1 hr after induction of shock, while, after 2 hr, the extraction index showed a proportionally greater decrease. The substances which most beneficially affected the hemodynamic disturbances were the combination of blood plus Ringer-lactate and low molecular weight dextran, resp.

**6686 THE PERFUSION OF ISOLATED INTESTINE IN THE DOG. SETTING UP A TECHNIQUE. ITS INTEREST.** *(Fr.)* Grenier, J. F. (Group Res. INSERM, Strasbourg, France), P. Wong, J. Kachelhoffer, A. M. Barth, F. Baruthio, A. Clavert and A. G. Weiss. *C R Soc Biol (Paris)* 161(12):2624-2627, 1968.

The dog intestine was perfused for studies of absorption, using a system of extra-corporeal circulation and homologous serum. Results showed that 15-30 min after perfusion the flow was stabilized at 30-35 ml/min, for an average arterial pressure of 105-110 mm Hg, equal to that measured in the mesenteric artery before the removal of the organ. The arterial and venous $pO_2$ ranged between 100-600 mm Hg. Oxygen consumption was 1.13 ml/100 g dry weight/min. The venous $pCO_2$ (average 35 mm Hg) was always higher than the arterial $pCO_2$ (average 28 mm Hg). The arterial and venous pH were resp. 7.37 and 7.33. This slight acidosis was corrected by using sodium heparinate (neutral pH) instead of simple heparin (pH = 4.6). The perfused intestine had normal peristalsis and its mucosa, histologically unaltered after 2 hr, secreted normally, with average levels of amylase, lipase and leucine aminopeptidase, resp., of 256 UW, 75 UT and 2590 UB.

**6687 AN EXPERIMENTAL STUDY ON LIVER NECROSIS IN RATS.** *(Jap.)* Kachi, T. (Gifu U. Sch. Med., Japan). *Acta Sch Med Univ Gifu* 15(3):462-496, 1968.

Liver necrosis was studied in 100 Wistar rats to determine whether necrosis could be produced by an interruption in the hepatic artery flow, severance of the common bile duct, or by interruption of the hepatic artery blood flow in association with with a disturbance of bile flow of varying degrees. The disturbance in bile flow was varied by changing the length of a catheter inserted into the common bile duct. This catheter was brought out through an incision in the flank and kept vertical to cause back pressure to bile flow. There was no necrosis after severance of the hepatic artery alone. There was 50% necrosis after severance of the common bile duct alone. When both the hepatic artery and the common bile duct was severed there was an incidence of 68% ncrosis. When the hepatic artery was severed and common bile duct catheters were inserted 0, 5, 10, 15, 20, 21 cm, the percentage of necrosis was 40, 43, 100, 78, 100 and 100, resp. Necrotic liver tissue in rats was yellowish grey, sharply outlined and odorless, entirely different from the necrotic liver tissue seen in dogs after ligation of the hepatic artery which was gangrenous, gas-producing and foul smelling. Liver necrosis in rats may be primarily attributed to disturbance in bile flow rather than disturbance of hepatic arterial blood flow.

**6688 DISTRIBUTION OF BLOOD FLOW IN VARIOUS SELECTED AREAS OF SMALL AND LARGE INTESTINE IN THE DOG.** *(E.)* Goodhead, B. (Royal Victoria Hosp., Montreal, Quebec, Canada). *Amer J Physiol* 217(3):835-837, 1969.

The radioactive indicator-fractionation technique for measuring regional blood flow was used to study blood distribution in selected areas of the small intestine and in the large intestine of 12 male mongrel dogs (10-20 kg). The functional perfusion rate in the proximal duodenum, and in the proximal, middle, and distal thirds of the jejunum and ileum (jointly), did not differ significantly, but the rate in the distal duodenum was higher than that in the distal small intestine (115.1 ml/min ± 47.6 vs. 92.3 ml/min ± 42.6). The colonic perfusion rate was significantly higher than that in all parts of the small intestine except the distal duodenum. Under fasting conditions, there is is no conclusive evidence of a gradient in functional perfusion rate in the small intestine.

**6689 PORTACAVAL SHUNTS: EXPERIMENTAL USE OF VARIOUS GRAFTING MATERIALS CONSTRUCTING A "Y" SHAPE SHUNT.** *(E.)* Betancourt, J. R. (Washington Hosp. Ctr., Washington, D. C.), E. F. Hirsh and J. T. Estes. *Amer Surg* 35(7):516-524, 1969.

A small pilot series is presented in which portacaval shunts were made in 15 mongrel dogs (12-25 kg) using different angulated grafts. The dogs were studied radiologically and anatomically from 12 hr to 32 weeks postoperatively. Seven animals received dacron grafts, only 1 of which became partially occluded. One animal died immediately after surgery, 2 others later during the postoperative period. Four received vein grafts, all of which remained patent. Two of these dogs, however, died in the early postoperative period. Four animals received arterial homografts. There were 8 long-term survivors (4 dacron, 2 homologous vein, 2 arterial homografts, and only the arterial grafts were occluded. These procedures may be used for clinical therapy of portal hypertension.

**6690 MICROCIRCULATORY CHANGES IN PRIMATE LIVER DURING SHOCK.** *(E.)* Vanecko, R. M. (Cook County Hosp., Chicago, Ill.), P. B. Szanto and W. C. Shoemaker. *Surg Gynec Obstet* 129(5):995-1004, 1969.

A relatively uniform appearance of the hepatic microcirculation with small variations in the size of the sinusoids and central veins at the hepatic surface was noted in 6 rhesus monkeys and man under initial control conditions. The blood flow in both sinusoids and central veins appeared to be homogeneous. After hemorrhage readily apparent changes occurred; in monkeys in a state of severe shock, the width of the sinusoids was increased and engorged with slowly moving cellular aggregates. Aggregates of cells were seen interspersed with clear areas of plasma; this gave a granular appearance to the circulating blood. Cellular aggregation appeared early in the course of hemorrhage and frequently persisted beyond the stage of small vessel dilatation and engorgement. The same was true of the central veins, but to a lesser degree. Those monkeys which were subjected to less severe degrees of shock survived longer and had less pronounced microcirculatory abnormalities. Changes in vascular dimensions observed by intravital microscopy were roughly proportional to those observed in biopsies.

6691 **EFFECTS OF PROLONGED CHLORPROMAZINE TREATMENT ON THE RAT INTESTINE.** *(E.)* Vapaatalo, H. I. (Dept. Pharmacol. U. Helsinki, Finland), J. E. Idänpään-Heikkila, P. J. Neuvonen and M. K. Paasonen. *Acta Pharmacol (Kobenhavn)* 27(4):262-268, 1969.

The effect of prolonged chlorpromazine (CPZ) treatment (5 and 20 mg/kg daily for 5 and 12 weeks) given by various routes was studied in rats. An i.p. dose of 20 mg/kg for 5 weeks caused dilatation of the intestine, but this was delayed, first appearing 8 weeks after discontinuation of the treatment. The reason for the dilatation may be either adhesions, possibly caused by local irritation by CPZ, or cellular damage due to a high concentration of the drug in the intestinal wall. CPZ did not cause any intestinal dilatation when administered s.c. or p.o. The 5-hydroxytryptamine (5HT) content of the dilated intestines did not differ from that of controls. Treatment for 5 weeks, however, reduced the 5HT content of the cecum, where the CPZ content was also the highest. Oral treatment (20 mg CPZ/kg) for 12 weeks somewhat increased the intestinal 5HT content.

6692 **THE STRAIN COMPLEX OF SCHISTOSOMA JAPONICUM IN TAIWAN, CHINA.** *(E.)* Li Hsü, S. Y. (U. Iowa, Coll. Med., Iowa City) and H. F. Hsü. *Z Tropenmed Parasit* 19(1):43-59, 1968.

6693 **THE RELATION OF THE FIRST PART OF THE DUODENUM TO THE MAIN BILIARY TREE AND THE GASTRODUODENAL ARTERY.** *(E.)* Nikolić, V. (Dr. Mladen Stojanović Gen. Hosp., Zagreb, Yugoslavia), V. Rudež, N. Ugarković, R. Budisavljević and D. Kovačević. *Med J (Belgrade)* 90(8):1-9, 1968.

6694 **INTERACTION IN THE GERMFREE MOUSE INTESTINE OF COLICINOGENIC AND COLICIN-SENSITIVE MICROORGANISMS.** *(E.)* Ikari, N. S. (NIH, Bethesda, Md.), D. M. Kenton and V. M. Young. *Proc Soc Exp Biol Med* 130(4):1280-1284, 1969.

6695 **STABILITY OF PEPSIN DURING STORAGE IN CANINE GASTRIC SECRETIONS AND IN AQUEOUS SOLUTIONS.** *(E.)* Hunner, M. C. (U. Washington Sch. Med., Seattle), F. B. Hudson and T. L. Fletcher. *Proc Soc Exp Biol Med* 130(4):1246-1250, 1969.

6696 **TECHNIQUE OF REMOVAL AND PREPARATION OF LIVER FOR ITS EXTRACORPOREAL PERFUSION.** *(Pol.)* Alichniewicz, A. (3rd Surg. Clin., Lodz, Poland), J. Martin, H. Zalech, A. Joss and D. Dziewaltowska. *Pol Przegl Chir* 41(4):370-372, 1969.

6697 **THE LYMPHATIC SYSTEM OF THE LARGE INTESTINE.** *(Ger.)* Vajda, J. (Anat. Inst., Med. U., Budapest, Hungary) and C. Léránth. *Acta Morph Acad Sci Hung* 15(3/4):257-263, 1967.

6698 **CHARACTERISTIC VASCULARIZATION OF THE STOMACH.** *(It.)* dalla Bernardina, L. (S. Maria Angeli Munic. Hosp., Pordenone, Italy). *Quad Radiol* 32(4):619-629, 1967.

6699 **EFFECT OF LEVELS OF CALCIUM AND LYSINE UPON THE GROWTH OF *ASCARIDIA GALLI* IN CHICKS.** *(E.)* Cuca, M. (Vet. Sci. Dept., U. Wisconsin, Madison), A. C. Todd and M. L. Sunde. *J Nutr* 94(1):83-88, 1968.

6700 **THE HEPATIC VENOUS SYSTEM. ITS NORMAL ROENTGEN ANATOMY.** *(E.)* Doehner, G. A. (St. Clare's Hosp., New York, N. Y.). *Radiology* 90(6):1119-1123, 1968.

6701 **THE HEPATIC VENOUS SYSTEM. ITS PATHOLOGIC ROENTGEN ANATOMY.** *(E.)* Doehner, G. A. (St. Clares Hosp., New York, N. Y.). *Radiology* 90(6):1124-1131, 1968.

6702 **EXPERIMENTAL PRODUCTION OF DIARRHEA IN RABBITS WITH *CLOSTRIDIUM PERFRINGENS.*** *(E.)* Duncan, C. L. (Food Res. Inst., U. Wisconsin, Madison) and D. H. Strong. *Canad J Microbiol* 15(7):765-770, 1969.

6703 **INTRAORGANIC BRANCHES OF PANCREATIC ARTERIES.** *(Rus.)* Shadrina, N. S. (S. M. Kirov Gorkii Med. Inst., USSR). *Arkhiv Anat* 53(11):88-91, 1967.

6704 **THE EFFECT OF SUBDIAPHRAGMAL VAGOTOMY ON THE SANGUIFEROUS BED OF THE MESENTERY OF THE SMALL INTESTINE.** *(Rus.)* Voitsekhovskii, S. I. (Ivano-Frankovsk Med. Inst., USSR). *Arkhiv Anat* 53(11):85-88, 1967.

6705 **EXPERIMENTAL STUDY OF INTESTINAL REVASCULARIZATION BY OMENTAL ADHESIONS.** *(E.)* Koikkalainen, K. (U. Cent. Hosp., Helsinki, Finland), E. Laustela, P. Tala and L. Teppo. *Ann Chir Gynaec Fenn* 56(4):444-448, 1967.

6706 **DEVELOPMENT OF COLLATERAL PATHWAYS OF BLOOD FLOW IN EXPERIMENTAL STENOSIS AND COMPLETE LIGATION OF THE PORTAL VEIN TRUNK.** *(Rus.)* Nikonorov, A. I. (Kuibyshev Med. Inst., USSR). *Arkhiv Anat* 53(11):81-85, 1967.

See also: 6414,6442,6529,6623,6752,6753,7041,
7042,7278,7388,7460,7593

## DIAGNOSTIC PROCEDURES

6707 **SERUM ORNITHIN-CARBAMYL-TRANSFERASE IN LIVER PATHOLOGY.** *(It.)* Negri, S. (Med. Clin., U. Milan, Italy), F. Civardi, L. Tenconi, N. Massari and S. Procaccia. *Minerva Med* 60(6):171-173, 1969.

In order to determine whether the high hepatospecificity of ornithin-carbamyl-transferase is associated with notable sensitivity as a plasma indicator of the liver cell cytolytic syndrome, the authors spectrophotometrically assayed the activity of this enzyme in 84 subjects (30 normal and 54 hepatopathic cases). The data indicated that the sensitivity and biochemical-biological significance of ornithin-carbamyl-transferase are similar to those of other cytolytic enzymes. The activity of ornithin-carbamyl-transferase paralleled the behavior of glutamic pyruvic transaminase, but showed no correspondent behavior with glutamic dehydrogenase activity. An increase of ornithin-carbamyl-transferase was observed only in the acute lytic stage of the liver cells.

6708 **A SCREENING TECHNIQUE FOR THE DETECTION OF ACHLORHYDRIA USING THE HEIDELBERG CAPSULE.** *(E.)* Williamson, J. M. (Western Infirm., Glasgow, Scotland), R. I. Russell and A. Goldberg. *Scand J Gastroent* 4(4):369-375, 1969.

The Heidelberg capsule was used for determining intragastric pH in 45 patients (aged 17-77 yr). Their diagnosis included pernicious anemia (21), iron deficiency anemia (12), non-Addison megaloblastic anemia (3), normocytic anemia (1), renal failure anemia (1), gastric erosion (1) obesity (1), systemic sclerosis (1), Sjögren's disease (1), pyloric stenosis (1), duodenal ulcer (1), and neurological disorder (1). Betazole hydrochloride (50-100 mg p.o. or s.c.) was used as the gastric secretory stimulus. A good correlation existed between the pH recorded by the technique described and that found during an augmented histamine test in patients suffering from a variety of anemias. In patients with pernicious anemia, achlorhydria was indicated by a pH equal to or greater than 4, using the method described.

6709 **SCREENING FOR ATROPHIC GASTRITIS, COMPARISON OF THE RESULTS OF AZURE-A TEST AND UROPEPSIN DETERMINATION WITH GASTRIC BIOPSY IN A RURAL POPULATION.** *(E.)* Isokoski, M. (2nd Med. Clin., U. Helsinki, Finland). *Scand J Gastroent* 4(5):425-433, 1969.

In order to determine the risk of persons suffering from atrophic gastritis to develop pernicious anemia and gastric carcinoma, a high risk group of 32 persons (9 men and 23 women) was selected from 1046 inhabitants of a Finnish rural commune by means of the Azure-A test and uropepsin determination. Gastric biopsy was performed in 24 persons, and the results were compared with those of a representative series of 142 persons selected at random from the same population. Significantly more atrophic gastritis was found in the high risk group than in the group selected at random. During a 2 yr period, 2 cases of pernicious anemia and 2 cases of gastric carcinoma developed in the high risk group while in the control group of 1014 persons none was found.

6710 **GASTRIC CYTOLOGY: EVALUATION OF METHODS AND RESULTS OF 1,670 CASES.** *(E.)* Foushee, J. H. S. (Bowman Gray Sch. Med., Winston-Salem, N. C.), Z. A. Kalnins, F. R. Dixon, S. Girsh, R. P. Morehead, T. F. O'Brien, H. Pribor and C. Tattory. *Acta Cytol (Balt)* 13(7):399-406, 1969.

In order to determine a simple, easy and economical method of obtaining recognizable exfoliated gastric cells in sufficient number to establish a cytological diagnosis, a total of 1670 patients (904 men, mean age, 53.6 yr; 766 women, mean age, 52.7 yr) were evaluated and 1977 gastric and esophageal washings were performed. A cytological diagnosis of "suspicious" or "positive" was made in 37 of 46 patients who had gastric adenocarcinoma with satisfactory washings (80.5%). Among the patients with benign lesions, the incidence of suspicious findings was highest in cases of chronic gastritis. Approximately a third of the 31 patients with 1 suspicious cytological examination proved to have a malignant lesion. Of the 23 patients who had repeat examinations, only 5 had a second diagnosis of "suspicious" or "positive"; 3 of these (60%) were found to have a malignant lesion. The figures emphasize the importance of repeating the cytologic examination in patients with suspicious cytologic findings.

6711 **THE USE OF $^{99}Tc^{m}$ ANTIMONY SULPHIDE COLLOID FOR LIVER SCANNING: ITS PREPARATION AND SOME CLINICAL AND EXPERIMENTAL OBSERVATIONS.** *(E.)* Hawkins, L. A. (St. Bartholomew's Hosp., London, England) and J. M. McAlister. *Brit J Radiol* 42(501):657-661, 1969.

The antimony sulphide colloid is prepared in 5 ml ampoules and stored until required. The efficiency of labeling was studied as a function of pH, and reducing the pH from 3.5 to 1.9 increased efficiency from 57 to 98%. Reduction of pH below 1.3 maintained the efficiency at 98%, but the colloid becomes cloudy. The free $^{99}Tc^{m}$ level did not increase with time after completion of the labeling process. Adult rats were injected with the material i.v., using the same mass of colloid/kg body weight as used in patients. The liver, spleen and lungs were removed at sacrifice 15 min after injection. Approximately 70% of the colloid was in the liver, 3.5% in the spleen, less than 1% in the lungs, and less than 1%/ml of blood. The rate of uptake in the liver after i.v. injection into patients was measured. The clearance from the circulation was also determined by blood sampling. Preliminary analysis indicates that, as a norm, 70-80% of the colloid is in the liver 20 min after injection and 10% in the blood.

6712 **SIGNIFICANCE AND LIMITATIONS OF JIRGL'S TEST. CRITICAL REVIEW AND PERSONAL CONTRIBUTION.** *(It.)* Brighi, W. (Munic. Hosp., Santarcangelo di Romagna, Italy), D. Jorio and M. P. Ballerani. *Minerva Med* 58(78):3335-3342, 1967.

In a total of 1813 cases of cholestatic jaundice reported in the literature, there were 83.2% positive Jirgl's tests; and in 2934 patients with noncholestatic jaundice the test was negative in 86.5%. In a further 18 cases of cholestatic jaundices there were 15 (16%) positive Jirgl's tests; in 24 noncholestatic jaundice there were 24 negative results; in 300 patients without hepatic diseases, 298 (99%) negative results; and on 50 controls 50 negative tests.

## DIAGNOSTIC PROCEDURES

Jirgl's test is useful, when associated with other laboratory tests, mainly to identify cholestatic jaundice.

6713 **COMPARATIVE STUDIES ON ROENTGENOLOGIC AND ULTRASONIC DIAGNOSIS OF GALLSTONE PATIENTS.** *(E.)* Inada, G. (Nagoya City U. Med. Sch., Japan) and M. Ishizaki. *Nagoya Med J* 14(3):145-149, 1968.

A comparative study of the operative findings after ultrasonic diagnosis and roentgen cholecystography was made in 62 patients. Ultrasonic diagnosis of gallstones is more often correct (60 of 62 procedures) than roentgenography in which there were 52 false negatives. Ultrasonic echography seems quite practical as it is very simple and sensitive to the extent that positive results can be obtained in 100% of those suffering from cholelithiasis. There were 2 false positives. As for the types of ultrasonic tomography, a linear compound scope is not adequate because of the low incidence of disease images. The contact compound scope is suitable for the diagnosis of gallstone for it produced clearcut images with high sensitivity.

6714 **SCHILLING'S TEST IN THE SO-CALLED NUTRITIONAL NEUROPATHIES.** *(Fr.)* Bresson, Y. (Fac. Med. Pharm., Dakar, Senegal), H. Collomb, G. Ballon, M. Dumas and M. Petit. *Bull Soc Med Afr Noire Lang Franc* 13(3):632-636, 1968.

On 13 patients (7 males and 6 females; 18-56 yr old) with nutritional neuropathy (8 polyneuritic forms, 4 pyramidal forms, 1 multiple sclerosis) and on 5 normal subjects, Schilling's test was carried out by administering p.o. 0.5 μg vitamin $B_{12}$ labeled with $^{58}$Co and, after 2 hr, injecting i.m. 1000 μg of cold vitamin $B_{12}$. The results showed that the radioactivity excreted in the urine during 24 hr was of an average value of 4.5% for the patients with nutritional neuropathy, and 17.5% for the normal subjects, confirming the hypothesis of an absorption deficiency in nutritional neuropathies.

6715 **DIGESTIVE ANGIOGRAPHY AND ABDOMINAL SURGERY.** *(Fr.)* Hernandez, C. (Bichat Hosp., Paris, France) and A. Bellin. *Ann Radiol (Paris)* 11(11/12): 792-800, 1968.

Among 140 patients with digestive hemorrhages, not explained by other techniques, angiography was positive in 38 (27%). Eleven cases hospitalized with a diagnosis of aortic aneurysm were found by angiography to have cancer of the pancreas, while while 3 supposed cases of cancer of the pancreas were shown to be aortic aneurysm in 2 and an atheromatous abdominal stenosis of the superior mesenteric artery in the third. When surgery is indicated, angiography is useful in determining: whether a nonsurgically treated lesion has healed or needs to be excised, whether excision is possible, and, when reoperation is indicated, whether there is metastases.

6716 **A SIMPLIFIED TECHNIQUE FOR JEJUNAL BIOPSY IN INFANTS.** *(E.)* Lacerte, M. (Christ-Roi Hosp., Quebec, Canada) and N. Pelletier. *Canad Med Ass J* 98(5):256-258, 1968.

The fasted patient, given a light premedication and blood coagulation tests to ensure suitability, is placed on his left side and the hypopharynx painted with lidocaine. The needle is removed from a small (inside diameter 1.19 mm) polyethylene tube, which has been lubricated with mineral oil, and the tube is slipped into a Levin tube No. 18. (The Levin tube serves as a support for the small tube and aids the introduction of the Carey capsule into the stomach,) A Portex tube is guided over the 2 tubes until the capsule rests against it. The Portex tube serves as a guide through the superior part of the esophagus and is then withdrawn.

6717 **THE PROBLEM OF LIVER SCANNING.** *(Cz.)* Konečný, M. (Med. Fac., Purkyně U., Brno, Czechoslovakia) and Z. Lupinek. *Vnitrni Lek* 14(11):1080-1087, 1968.

The experiences with scintillation scanning of 56 patients, 38 with diffuse lesions (chronic hepatitis 10 and cirrhosis 28), 15 malignant lesions (2 primary liver carcinoma, 13 metastatic tumors) and 2 liver abscesses and 1 echinococcus cyst are reviewed. The most convincing results were in patients with the larger lesions: abscesses from amebic dysentery of the liver, echinococcus cysts and macronodular metastases to the liver. The clinical diagnosis was confirmed and the precise location of the lesion determined for possible surgical intervention. Scintigrams are of prime importance but a normally functioning liver does not rule out the existence of small pathological foci which might not have been found on scintigraphic study. The risk to the patient is practically nil.

6718 **ESTIMATION OF FAECAL FAT EXCRETION USING CUPROUS THIOCYANATE AS A CONTINUOUS MARKER.** *(E.)* Lee, M. F. (U. Coll. Hosp., London, England), J. M. Temperley and M. Dick. *Gut* 10(9): 754-759, 1969.

A method for the estimation of fecal fat excretion using cuprous thiocyanate (CuSCN) as a continuous marker is described. The patient is given CuSCN, 250 mg daily in 3 divided doses after meals, while taking a normal diet. On the sixth day a stool sample weighing at least 40 g is collected. The 24 hr fat excretion is then calculated in gm fat/250 mg CuSCn. Results obtained from a single 24 hr stool sample were in close agreement with those from a three-day collection using this technique in 8 normal patients and 6 with steatorrhea. The method is simpler and more accurate than collections done without a marker.

6719 **THE DEMONSTRATION OF PORPHYRINS IN GASTRIC JUICE BY FLUORESCENCE MICROSCOPY.** *(E.)* Czitober, H. 1st Med. Clin., U. Vienna, Austria), H. Denk and H. Schnack. *German Med Monthly* 14(6):280-285, 1969.

Parallel studies by fluorescence microscopy and by macroscopic inspection under ultraviolet light were made of the liver, bone and gastric juice sediment in 25 patients (24 men and 1 woman; 34-71 yr old) with porphyria cutanea tarda. In 19 of the 25 patients it was possible, for the first time, to demonstrate the presence of porphyrins in the cellular sediment of gastric juice. In 20 patients porphyrins were found concomitantly in both the liver and the bone, in 17 in both the liver and gastric juice, and in 17 in both bone and gastric juice. The metabolic disturbance of porpyria cutanea tarda is therefore manifest not only in the liver and bo ne but also in the mucosa of the stomach.

## DIAGNOSTIC PROCEDURES

6720 **ROSE BENGAL LIVER AND ABDOMINAL LIVER SCANS IN THE DIFFERENTIAL DIAGNOSIS OF JAUNDICE.** *(E.)* Davia, J. E. (Tripler Army Med. Ctr., Honolulu, Hawaii), J. M. Earll, R. D. Moore and W. D. Durden. *Milit Med* 134(6):445-450, 1969.

Serial scans of the abdomen after injection of $^{131}$I Rose Bengal were carried out in 45 jaundiced patients. Patency of the biliary tree was accurately determined in all 32 cases of nonobstructive jaundice, and in 11 of 13 cases of obstructive jaundice. Direct observation of the passage of the dye through a patent biliary system into the gut was possible with this technique. When the biliary tree was completely obstructed, a gut pattern was not visualized. When excretion through the biliary tree was impaired, renal excretion became more significant, and scanning allowed correct identification of radioactivity from this source by outlining the familiar renal shape. The technique was a safe and remarkably accurate means of distinguishing between complete obstructive and incomplete or nonobstructive jaundice.

6721 **ROENTGEN ANATOMY OF THE DUCTUS HEPATOCHOLEDOCHUS. I. COURSE AND DIMENSION OF THE DUCTUS HEPATOCHOLEDOCHUS IN ROENTGENOGRAMS.** *(E.)* Kocon, T. (Med. Acad., Warsaw, Poland). *Pol Rev Radiol Nucl Med* 32(2):236-245, 1968.

6722 **ROENTGEN ANATOMY OF THE DUCTUS HEPATOCHOLEDOCHUS. II. RELATION OF THE SHADOW OF THE DUCTUS HEPATOCHOLEDOCHUS TO THE SHADOW OF THE VERTEBRAL COLUMN IN ROENTGENOGRAMS.** *(E.)* Kocon, T. (Med. Acad., Warsaw, Poland). *Pol Rev Radiol Nucl Med* 32(2):246-254, 1968.

6723 **CONTRIBUTIONS OF GASTROBIOPSY TO THE STUDY OF DIGESTIVE ALLERGY.** *(Rum.)* Strat, C. (2nd Med. Clin., I.M.F., Romania), A. Boingeanu, L. Wassermann and E. Miron. *Med Intern (Bucur)* 20(4):415-418, 1968.

6724 **THE ROLE OF TRANSLATERAL FILMS IN THE BARIUM MEAL.** *(E.)* Hajdu, N. (St. George's Hosp., London, England). *Clin Radiol* 19(1):33-41, 1968.

6725 **L'ADDOME DOLOROSO (THE PAINFUL ABDOMEN).** *(It.)* Ciammaichella, A. Rome, Il Pensiero Scientifico, 1968.

6726 **ULTRA-RAPID DIAGNOSIS OF INTESTINAL PARASITES.** *(Por.)* Junior, S. M. (Sch. Pharm., Fed. U. Rio de Janeiro, Brazil). *Hospital (Rio)* 72(5):1509-1515, 1967.

6727 **THE IMMUNO-FLUORESCENCE TEST IN SECTIONS OF *FASCIOLA HEPATICA:* A NEW TECHNIQUE FOR SEROLOGICAL DIAGNOSIS OF DISTOMIASIS.** *(Fr.)* Coudert, J. (Fac. Med. U. Lyon, France), J. P. Garin, P. Ambroise-Thomas, Kien Truong Thai, J. Despeignes and M. A. Potheir. *Bull Soc Path Exot* 60(1):71-79, 1967.

6728 **THE DIAGNOSTIC POSSIBILITIES OF LAPAROSCOPY, LAPAROPHOTOGRAPHY AND LIVER PUNCTURE BIOPSY IN CLINICAL PRACTICE.** *(Bul.)* Penev, P. (Higher Med. Inst., Sofia, Bulgaria) and B. Karabashev. *Suvremenna Med (Sofiia)* 18(11):905-914, 1967.

6729 **LABORATORY GUIDES TO SCALENE NODE OR LIVER BIOPSY IN SUSPECTED SARCOIDOSIS.** *(E.)* Foti, P. R. (Georgetown U. Hosp., Washington, D. C.) and K. M. Moser. *Amer Rev Resp Dis* 99(4):610-613, 1969.

6730 **LIVER BIOPSY IN CHILDHOOD. EVALUATION OF THE CONTRIBUTION OF BIOPSIES BASED ON A COMPARISON OF BIOPTIC AND CLINICAL DIAGNOSES.** *(E.)* Cihula, J. (Med. Fac., Hradec Kralove, Czechoslovakia) and V. Herout. *Rev Czech Med* 15(1):24-28, 1969.

6731 **LIVER FUNCTION TESTS: THE UNDERLYING PRINCIPLES.** *(E.)* Jeanes, A. (Guy's Hosp., London, England). *Med World (London)* 107(5):16-18, 1969.

6732 **LIVER SCANNING.** *(Rev.)(E.)* Flowers, W. M. (U. Mississippi Sch. Med., Jackson). *J Mississippi Med Ass* 10(9):401-405, 1969.

6733 **THE SHORT PENTAGASTRIN TEST IN THE INVESTIGATION OF GASTRIC DISEASE.** *(E.)* Kirkpatrick, J. R. (Welsh Natl. Sch. Med., Cardiff), J. H. Lawrie, A. P. M. Forrest and H. Campbell. *Gut* 10(9):760-762, 1969.

6734 **B-SCAN ULTRASONOGRAPHY OF ABDOMINAL MASS LESIONS.** *(E.)* Cohen, W. N. (U. Hosp., U. Iowa, Iowa City). *Radiology* 93(3):589-591, 1969.

6735 **EVALUATION AND SIMPLE MODIFICATION OF THE GASTRIN TEST.** *(E.)* Mason, M. C. (Gen. Infirm., Leeds, England) and G. R. Giles. *Gut* 10(5): 375-378, 1969.

6736 **A SIMPLIFIED TUBE CONTROL METHOD OF HYPOTONIC DUODENOGRAPHY.** *(E.)* Lawson, T. L. (U. California Sch. Med., San Francisco) and A. R. Margulis. *Radiology* 92(5):1119-1120, 1969.

6737 **TRANSDUODENAL ENDOSCOPY.** *(E.)* O'Beirn, S. F. (Regional Hosp., Galway, Ireland). *Gut* 10(4):323-324, 1969.

6738 **EVALUATION OF "INTRACATH" METHOD OF ABDOMINAL PARACENTESIS.** *(E.)* Berger, W. J. (Orange County Med. Ctr., Calif.). *Amer Surg* 35(1):23-26, 1969.

6739 **DIFFERENCES BETWEEN MALES AND FEMALES IN THE HOLLANDER INSULIN TEST.** *(E.)* Spencer, J. (Royal Postgrad. Med. Sch., London, England), G. P. Burns, F. C. Y. Cheng, A. G. Cox and R. B. Welbourn. *Gut* 10(4):307-310, 1969.

## DIAGNOSTIC PROCEDURES

6740 THE ROLE OF RADIOACTIVE ISOTOPES IN THE DIAGNOSIS OF GASTRO-INTESTINAL DISEASE. *(Rev.)(E.)* Powell, L. W. (Royal Brisbane Hosp., Australia). *Med J Aust* 2(7):359-363, 1969.

6741 THE ISOLATION OF SALMONELLA ON TAYLOR MEDIUM. *(Fl.)* Peeters, H. (Sint-Janshospitaal, Bruges, Belgium), F. de Backer and I. Glibert. *T Gastroent* 12(2):179-181, 1969.

6742 A NEW TRIAL IN THE X-RAY DIAGNOSIS OF SURGICAL COLONIC DISEASES. THE DOUBLE AIR CONTRAST METHOD WITH A CONTRAST MEDIUM OF HIGH CONCENTRATION AND LOW VISCOSITY. *(E.)* Matsukura, S. (Nippon Med. Sch., Tokyo, Japan), A. Shirota and T. Uchida. *Int Surg* 52(1):68-71, 1969.

6743 MODERN GASTROSCOPY. *(E.)* Gear, M. W. L. *Med Rev* 1(7):5-6, 1969.

6744 THE CONTRIBUTION OF HEPATIC ANGIOGRAPHY TO THE DIAGNOSIS OF ALVEOLAR ECHINOCCOSIS OF THE LIVER. FOUR CASES. *(Fr.)* Heully, F. (Nancy, France), J. Grosdidier, P. Gaucher, F. Gaucher, J. Fays and F. Penin. *Arch Franc Mal Appar Dig* 58(7/8):457-468, 1969.

6745 PROCTOSIGMOIDOSCOPY AND ITS HAZARDS. *(E.)* Massey, C. I. (Westminster Hosp., London, England). *J Abdom Surg* 11(6):117-119, 1969.

6746 THE BROMSULPHTHALEIN PLASMA CLEARANCE. *(E.)* Mikulecký, M. (Fac. Med., Comenius U., Bratislava, Czechoslovakia). *Rev Czech Med* 15(1):41-44, 1969.

6747 OBSERVATIONS ON THE HOYT-MORRISON TEST. *(It.)* Di Nola, F. (Amedeo di Savoia, Hosp., Turin, Italy), G. C. Angela and A. Pasquale. *G Mal Infett* 19(6):362-366, 1967.

6748 SEROLOGICAL DIAGNOSIS OF AMEBIASIS BY MEANS OF IMMUNOFLUORESCENCE. RESULTS OF 160 EXAMINATIONS. *(Fr.)* Coudert, J. (Fac. Med. U. Lyon, France), J. P. Garin, P. Ambroise-Thomas and J. P. Georget. *Bull Soc Path Exot* 60(1):44-52, 1967.

6749 INTRAVENOUS CHOLANGIOGRAPHY BY PERFUSION. RESULTS. *(Fr.)* Lemaitre, G. (Lille Hosp., France), P. Merveille, J. Carton and M. Deschildre. *Lille Med* 12(8):924-926, 1967.

6750 PROPOSED METHOD IN PANCREATIC SCINTILLATION SCANNING. *(It.)* Pozza, F. (Dept. Radiol., U. Padua, Italy), S. Romani, R. Ravasini, G. Grapulin and O. Fontanin. *Quad Radiol* 32(4):551-570, 1967.

6751 RADIOLOGIC EVALUATION OF THE STOMACH WALLS USING NATURAL AND ARTIFICIAL PARIETOGRAPHY. *(Pol.)* Winnicki, S. (Tuberculosis Clin., Warsaw, Poland). *Pol Przegl Radiol* 31(4):555-556, 1967.

6752 ANAEROBIC FLORA IN NATURAL HUMAN CAVITIES. I. SIMPLE METHOD OF ISOLATING *CL. PERFRINGENS* IN THE INTESTINE. *(Fr.)* Bittner, J. (Dr. Cantacuzino Inst., Bucharest, Romania), V. Voinesco and J. Ardeleanu. *Arch Roum Path Exp Microbiol* 26(4):856-864, 1967.

6753 ANAEROBIC FLORA IN NATURAL HUMAN CAVITIES. II. SIMPLE METHOD OF ISOLATING *CL. BIFERMENTANS* IN THE INTESTINE. *(Fr.)* Bittner, J. (Dr. I. Cantacuzino Inst., Bucharest, Romania), V. Voinesco and J. Ardeleanu. *Arch Roum Path Exp Microbiol* 26(4):865-876, 1967.

6754 RECTAL CHOLECYSTOGRAPHY WITH BILOPTIN-SOLUTION. *(Ser.)* Mihajlović, N. (Dr. Josip Kifes Hosp., Zagreb, Yugoslavia). *Lijecn Vjesn* 89(4):319-324, 1967.

6755 A COMPARATIVE ASSESSMENT OF FUNCTIONAL TESTS OF THE LIVER. *(Rus.)* Abasov, I. T. (Azerbaidzhan Inst. Roentgenol., Baku, USSR). *Klin Med (Moskva)* 45(10):100-102, 1967.

6756 INVERSION GASTROSCOPY. *(Ger.)* Ottenjann, R. (U. Med. Clin., Erlangen, Germany) and O. Stadelmann. *Fortschr Med* 85(15):631-633, 1967.

6757 GASTRIC PHOTOGRAPHY. CLINICAL USE OF GASTROCAMERAS. *(E.)* Dunn, G. D. (U. Kansas Sch. Med., Kansas City), J. H. Feagan and J. B. Rhodes. *J Kansas Med Soc* 69(3):139-150, 1968.

6758 GASTRO 'CONRAY' IN THE RADIOLOGICAL EXAMINATION OF GASTRO INTESTINAL TRACT. *(E.)* Bhardwaj, O. P. (Maulana Azad Med. Coll., New Delhi, India) and K. P. Mittal. *Indian J Radiol* 22(4):211-216, 1968.

6759 PRAKTISCHE ENZYMOLOGIE. GRUNDLAGEN GESICHERTES UND GRENZEN. BAND 1 (PRACTICAL ENZYMOLOGY. BASES, APPLICATIONS AND LIMITATIONS. Vol. 1). *(Ger.)* Schmidt, F. W. Bern, Hans Huber, 1968. 388 pp.

6760 ATLAS DER LAPAROSKOPIE (ATLAS OF LAPAROSCOPY). *(Ger.)* Beck, K., W. Dischler, M. Helms, B. Kiani, K. Sickinger and R. Tenner. Stuttgart, F. K. Schattauer, 1968. 206 pp.

6761 PANCREATIC SCINTIGRAPHY. *(Fr.)* Beck, C. (Saint-Andre Hosp., Bordeaux, France), M. Gillet, J. Courtois, J. C. Balagayrie and P. Blanquet. *Rev Med Liege* 23(Suppl 1):112-113, 1968.

6762 LACTOSE TOLERANCE TEST. *(Sp.)* Morean de Belfort, D. (U. Hosp., Caracas, Venezuela), J. Valencia-Parparcen and S. Beker. *GEN* 22(4):313-317, 1968

# DIAGNOSTIC PROCEDURES

6763 **THE VALUE OF AMNIOGRAPHY IN THE STUDY OF CHRONIC FETAL DISTRESS. CORRELATION WITH THE FETAL ELECTROCARDIOGRAM.** *(Sp.)* Karchmer, S. (Mexican Inst. Social Security, Mexico City), V. Shor, A. Perdomo-de la Sierra, P. E. de Smoler, E. Ontiveros and R. Barron-Vega. *Gac Med Mex* 98(10):1299-1310, 1968.

6764 **THE SECRETIN TEST IN BILIARY LITHIASIS.** *(Sp.)* Molina, E. ("Dr. Urquinaona" Cent. Hosp., Maracaibo, Venezuela) and M. Bracho. *GEN* 22(4):305-311, 1968.

6765 **THE STRING TEST. ITS USE IN DIGESTIVE HEMORRHAGES.** *(Sp.)* Ortega Borjas, J. A. (Gen. Social Security Hosp., Caracas, Venezuela), M. A. Garassini and E. Quiros Soto. *GEN* 23(1):79-87, 1968.

6766 **STIMULATION OF GASTRIC SECRETION WITH HISTALOG AT HIGH ALTITUDES IN THE ANDES OF PERU.** *(Por.)* Garrido Klinge, G. (Postgrad. Sch. Med., Pontifical Catholic U. Rio de Janeiro, Brazil), C. Horna Risco and L. Peña Herrera. *Brasil Med* 82(2):123-126, 1968.

6767 **GELATIN INGESTION TEST IN THE STUDY OF THE PROTEOLYTIC ACTIVITY OF PANCREATIC EXOCRINE SECRETION.** *(Sp.)* Fernandez, O. (Hosp. J. J. Aguirre, Santiago, Chile), P. Ceron, J. Litvak, R. Armendariz and A. Rojas. *Rev Med Chile* 96(9):572-578, 1968.

6768 **EVALUATION OF THE DIAGNOSTIC VALUE OF ORAL CHOLECYSTOGRAPHY ON THE BASIS OF PERSONAL OBSERVATIONS.** *(Pol.)* Kulicz, A. (Acad. Med., Zabrze, Poland). *Przegl Lek* 23(4):390-391, 1967.

6769 **SERUM ALKALINE PHOSPHATASE IN THE EARLY STAGES OF INFECTIOUS HEPATITIS.** *(It.)* Castello, D. (Clin. Pediat., U. Turin, Italy) and C. de Sanctis. *G Mal Infett* 19(6):368-369, 1967.

6770 **STUDY OF SERUM LEUCINE-AMINO-PEPTIDASE DURING THE COURSE OF ACUTE ENTERITIS IN NURSING CHILDREN.** *(It.)* Mussa, G. C. (Pediat. Clin., U. Turin, Italy), D. Pavesio and R. Ballario. *G Mal Infett* 19(7):437-438, 1967.

6771 **RIFAMYCIN SV CLEARANCE AS HEPATIC FUNCTION TEST. COMPARISON WITH THE BROMSULPHALEIN CLEARANCE.** *(E.)* Laudano, O. M. (Sch. Med., Rosario, Argentina), C. Cifarelli, A. Brasca and E. Mercol. *Rev Int Hepat* 17(4):423-428, 1967.

6772 **A SIMPLE METHOD OF HEPATO-BILIARY EXPLORATION WITH BSP.** *(Fr.)* Pasini, P. *Rev Int Hepat* 17(5):449-458, 1967.

6773 **OPERATIVE CHOLANGIOGRAPHY USING A NEW TECHNIQUE.** *(E.)* Hecker, E. T. (Zieger Osteopathic Hosp., Detroit, Mich.). *J Amer Osteopath Ass* 68(2):131-136, 1968.

6774 **IMMUNOFLUORESCENCE IN PARASITOLOGY.** *(Fr.)* Garin, J. P. (Fac. Med. Pharm. Lyon, France) and P. Ambroise-Thomas. *G Mal Infett* 20(1):61-81, 1968.

6775 **INDICATIONS, RESULTS AND LIMITS OF STANDARD GASTROSCOPY.** *(Fr.)* Chapuis, G. (Brest, France), J. Cherbuy and M. Treppoz. *Ouest Med* 21(8):674-680, 1968.

6776 **EVALUATION OF THE FLUORESCENT ANTIBODY TEST OF DIAGNOSIS OF DYSENTERY.** *(Rus.)* Kariagina, Ie. I., T. A. Nikolaieva and K. I. Krivonosova. *Tr Leningr Inst Epidem Microbiol Paster* 33:294-304, 1968.

6777 **USE OF SUPPLEMENTARY METHODS FOR THE MICROBIOLOGICAL DIAGNOSIS OF DYSENTERY. I. THE RESULTS OBTAINED FROM SERENY'S KERATOCONJUNCTIVAL TEST.** *(Rus.)* Avdeieva, T. A. and V. T. Turuleva. *Tr Leningr Inst Epidem Microbiol Paster* 33:305-310, 1968.

6778 **THE FLUORESCENCE OF INTESTINAL TISSUE DURING PAIN, HUNGER AND THIRST.** *(Sp.)* Alvarez-Morujo, A. (Dept. Anat., U. Salamanca, Spain) and C. Garzon Querol. *Cir Ginec Urol* 22(3):418-425, 1968.

6779 **RADIOLOGICAL DIAGNOSIS OF ABDOMINAL-MEDIASTINAL LIPOMAS.** *(Rus.)* Rozenshtraukh, L. S. (Moscow Sci. Res. Inst. Roentgenol. Radiol., USSR), I. D. Kuznetsov, S. S. Manafov and E. V. Krivenko. *Vop Onkol* 14(4):34-39, 1968.

6780 **SULFOBROMOPHTHALEIN TEST IN CHRONIC ALCOHOLISM.** *(Pol.)* Operacz, H. (Provincial Hosp., Opole, Poland), K. Swierczak, A. Wedrychowicz and M. Wróblewska-Kazimierowicz. *Pol Tyg Lek* 23(32):1189-1191, 1968.

6781 **INTRAVENOUS CHOLANGIOGRAPHY. THE PERFUSION METHOD.** *(Sp.)* Gasto Parramona, J. M. (Nuestra Señora Sagrado Corazon Jesus Hosp., Barcelona, Spain). *Rev Esp Enferm Apar Dig* 27(4):578-587, 1968.

6782 **A THERAPEUTIC TEST WITH CORTICOID SUBSTANCES IN JAUNDICE DIAGNOSIS.** *(Rum.)* Gavrilă, I., T. Negomireanu, M. Igna, L. Berdilă and R. Ardeleanu. *Clujul Med* 41(1):65-76, 1968.

6783 **THE VALUE, LIMITATIONS AND BIOLOGICAL SIGNIFICANCE OF HOYT-MORRISONS HETERO-AGGLUTINATION TEST.** *(It.)* Sorice, F. (Inst. Infect. Dis., U. Sassari, Italy), L. Castagnari, S. Delia and R. Pozzuoli. *Ann Sclavo* 9(4):506-537, 1967.

6784 **DOUBLE CONTRAST BARIUM MEAL TECHNIQUE.** *(E.)* Kalokerinos, J. (Royal North Shore Hosp., Sydney, Australia). *Aust Radiol* 11(3):246-249, 1967.

## DIAGNOSTIC PROCEDURES

6785 **ROENTGENOMETRIC DETERMINATION OF THE LENGTH OF THE DIAPHRAGM-PERITONEAL SECTION OF THE ESOPHAGUS.** *(Rus.)* Kushnarevich, R. L. (I. M. Sechenov Moscow Med. Inst., USSR). *Arkh Anat* 53(11):59-65, 1967.

6786 **DIAGNOSIS OF *S. JAPONICA* BY CIRCUM-OVAL-PRECIPITIN TEST USING DRIED BLOOD ON FILTER PAPER.** *(E.)* Cabrera, B. D. (Inst. Hyg., Philllipines), E. G. Garcia and R. B. Silan. *Acta Med Philipp* 4(4):168-174, 1968.

6787 **DIAGNOSIS OF FOOD ALLERGIES.** *(Fr.)* Lange, R. (Paris Hosp., France). *Maroc Med* 47(506):634-637, 1967.

6788 **RÖNTGENOLOGIE FÜR DIE PRAXIS, I. TEIL: DIE GASTROINTESTINALEN ERKRANKUNGEN EINSCHLIESSLICH GALLENWEGE, GALLENBLASE UND PANKREAS (ROENTGENOLOGY FOR THE PRACTITIONER, PART I: THE GASTROINTESTINAL DISEASES INCLUDING BILE DUCT, GALLBLADDER AND PANCREAS).** *(Ger.)* Hartweg, H. and K. H. Renner. Munich, J. F. Lehmanns, 1968. 176 pp.

See also: 6418,6444,6445,6448,6591,6592,6597,6645,6700,6701,6792,6799, 6812,6846,6861,6862,6866,6873,6897,6905,6932,6935,6964,6982, 6985,6995,7022,7032,7037,7039,7061,7065,7067,7075,7080,7084, 7144,7177,7178,7198,7200,7204,7209,7220,7227,7229,7235,7238, 7239,7241,7245,7246,7256,7267,7271,7272,7275,7282,7291,7294, 7307,7315,7316,7317,7331,7334,7336,7364,7365,7391,7400,7401, 7407,7412,7417,7430,7432,7435,7436,7473,7490,7491,7505,7507, 7510,7523,7531,7602,7646,7666,7670,7672,7673,7676,7678,7683, 7686,7687

# GASTROINTESTINAL DISEASES

## ESOPHAGUS

### 6789 CRICOPHARYNGEAL MYOTOMY FOR PHARYNGO-ESOPHAGEAL DIVERTICULUM.

*(E.)* Ellis, F. H. Jr. (Mayo Clin., Rochester, Minn.), J. F. Schlegel, V. P. Lynch and W. S. Payne. *Ann Surg* 170(3): 340-350, 1969.

Eighteen patients (10 male, 8 female, average age 74 yr) were treated by cricopharangeal myotomy during a 34-month period. In addition to the myotomy, 4 had diverticulopexy and 4 had diverticulectomy. All but 1 of the 18 patients improved. Fourteen were asymptomatic and 3 had only occasional symptoms of dysphagia. Of the 14 patients treated by myotomy without diverticulectomy, 1 patient with a large pouch was not improved. Postoperative X-rays showed (28 studies in 16 patients) persistent diverticulum in this patient and no diverticulum in the 15 others. Preoperative esophageal motility studies in 8 of the 18 patients showed no significant abnormalities in pharyngoesophageal sphincter pressure or length, incidence and duration of relaxation, or magnitude of contraction. However, an abnormal temporal relationship between swallowing responses in the pharynx and sphincter was noted in all the patients; the abnormality was characterized by the occurrence of sphincteric contraction before completion of pharyngeal contraction. This abnormal sequence was not altered by cricopharangeal myotomy, but the operation reduced the resting pressures in the sphincter by 50% and produced a modest decrease in length. Cricopharyngeal myotomy is a simple, safe and successful alternative to diverticulectomy for the symptomatic patient with a small or moderate-sized pharyngo-esophageal diverticulum. Patients with diverticula of large size (5 to 6 cm in diameter) should have a diverticulectomy.

### 6790 BILIOUS VOMITING AFTER GASTRIC SURGERY: A SYMPTOM OF SLIDING ESOPHAGEAL HIATUS HERNIA.

*(E.)* Turner, F. P. (Surg. Svc., VA Ctr., Togus, Me.). *Amer J Dig Dis* 14(5):297-304, 1969.

Nine patients with chronic bilious vomiting after gastric surgery (4 partial gastrectomy, 1 partial gastrectomy and vagotomy; 1 vagotomy and pyloroplasty, 2 vagotomy and pyloroplasty plus hiatal hernia repair, and 1 posterior gastrojejunostomy) for peptic ulcer were found to have sliding esophageal hiatus hernias. The vomiting occurred 30-60 min after eating and the vomitus seldom contained any food. Surgical repair of the hernia resulted in immediate relief of the symptoms. Significant gastroesophageal reflux was demonstrated in the 4 patients in whom preoperative cinefluorography was performed. Undiscovered sliding esophageal hiatus hernia is the cause of bilious vomiting in some of the patients heretofore thought to have the afferent-loop syndrome.

### 6791 BLOOD-VOLUME AND WEIGHT-LOSS IN MALIGNANT OESOPHAGEAL OBSTRUCTION.

*(E.)* Andros, G. (Western Infirm., Glasgow, Scotland). *Brit J Surg* 56(2):92-95, 1969.

Red blood-cell volume and plasma-volume were measured in 16 patients (10 males, 6 females) with localized malignant esophageal obstruction and resulting weight-loss (dysphagia was present in all). The percentage weight-loss was double the percentage loss of blood-volume. However, the blood-volume at the new weight approximated the predicted blood-volume based on height and weight. The ratio of total body hematocrit/corrected venous hematocrit was found to be reduced to 0.861 in the 7 patients studied. Preoperative blood transfusion is not warranted in these debilitated, starved patients before major operative procedures because they are normovolemic. Preoperative i.v. fluid supplementation may be required since there may be an extracellular fluid deficit, with its hazards.

### 6792 THE CLINICAL VALUE OF RADIOACTIVE PHOSPHORUS ($^{32}$P) IN THE DIAGNOSIS OF ESOPHAGEAL CANCER.

*(E.)* Nelson, R. S. (U. Texas M. D. Anderson Hosp. & Tumor Inst. Houston) and F. L. Lanza. *Amer J Dig Dis* 14(8):538-544, 1969.

The use of radioactive phosphorus ($^{32}$P) in combination with a miniature Geiger counter passed through the esophagoscope was evaluated in 204 tests on 198 patients during a 10-yr period. In 66 patients with primary cancer of the esophagus the method was 96% accurate, and in 28 patients with gastric cancer invading from below it was 93% accurate. There were 4 falsely positive results in 27 patients with esophagitis (85% accurate), 1 in 9 cases of cardiospasm or achalasia, and 2 in 68 control cases (97% accurate). The test was especially useful in 6 cases of primary esophageal carcinoma without gross mucosal involvement and also in delineating the extent of esophageal involvement in gastric cancer.

### 6793 INTRAPERITONEAL GASTRIC FIXATION OF HIATAL HERNIA.

*(E.)* Buehler, J. M. (Fremont Calif.). *Amer J Surg* 118(4):567-568, 1969.

Nineteen consecutive hiatal hernia repairs were performed utilizing crural approximation, selective vagotomy, pyloroplasty, and gastrostomy with traction on the lesser curvature of the stomach to maintain reduction of the esophagocardiac junction. There were 11 women and 8 men. Most were in their 5th and 6th decades. All were symptomatic from esophagitis. Fifteen patients became asymptomatic, 3 had a fair result with mild persistent symptoms, and 1 was lost to follow-up.

### 6794 PRESSURE RELATIONSHIPS RESPONSIBLE FOR REFLUX IN PATIENTS WITH HIATAL HERNIA.

*(E.)* Longhi, E. H. (Baylor U. Coll. Med., Houston, Tex.) and P. H. Jordan Jr. *Surg Gynec Obstet* 129(4):734-748, 1969.

The pressure relationships resulting in gastroesophageal reflux were evaluated in 3 patients with sliding hiatal hernia by means of simultaneous cineradiography and manometric studies. The importance of a normally functioning gastroesophageal sphincter, located within the abdomen, was demonstrated. Gastroesophageal sphincters, normal except for their displacement into the chest, were unable to resist retrograde flow if the pressure gradient between the esophagus, hernial pouch, and stomach are reversed by any of a variety of causes, including straining, increased resistance at the distal outlet of the hernial pouch, and receptive relaxation of the sphincter during swallowing.

## ESOPHAGUS

6795 **ACHALASIA OF THE ESOPHAGUS IN A SMALL URBAN COMMUNITY.** *(E.)* Earlam, R. J. (Mayo Grad. Sch. Med., U. Minnesota, Rochester), F. H. Ellis Jr. and F. T. Nobrega. *Mayo Clin Proc* 44(7):478-483, 1969.

An epidemiologic study of achalasia of the esophagus in Rochester, Minnesota, disclosed 11 resident patients (3 men and 8 women, 28-71 yr old) with this condition diagnosed during the 30-yr period, 1935-1964. The 1 absolute criterion for diagnosis was roentgenographic evidence of a dilated esophagus with no evidence of any organic esophageal stricture. The overall incidence rate by decade of onset was 0.6 per 100,000/yr. This rate did not change appreciably during the years studied, and no etiologic factors could be identified. Although achalasia occurred in young patients of both sexes, there was some selection in this series for females in the older age group. Among those patients, there appeared to be no effect on life expectancy.

6796 **EXPERIMENTAL ESOPHAGEAL VARICES.** *(E.)* Dòmini, R. (U. Bologna Med. Sch., Italy) and E. L. Shaw. *Surgery* 66(4):715-722, 1969.

Experimental esophageal varices were induced in the rabbit with a 2-stage procedure. The first stage is accomplished through a medial laparotomy whereby a circular incomplete constriction of the vena porta is made with 4-0 surgical silk. The caliber of the vein is kept constant by tightening the ligature over the shaft of a curved probe (whose diameter can be varied from 1.5-2.5 mm depending on the size of the rabbit) which is removed after the tie is completed. This stage permits an adequate anastomosis between the superior mesenteric and the pyloroduodenal veins, allowing venous return around the narrowed vessel. The second stage is carried out after 3-4 weeks. The stenosis is created in the dilated pyloroduodenal vein. The blocking of one of the major centripetal vessels further increases the already high portal pressure and favors a more abundant centrifugal circulation away from the liver. After 3-4 more weeks splenic congestion and a rich visceroparietal circulation can be observed together with very prominent esophageal varices. This technique avoids long induction time, multiple laparotomies, and high mortality rate. The esophageal varices thus produced are anatomically conformable to the esophageal varix pattern in man.

6797 **THE THORACIC STOMACH: MANAGEMENT OF OBSTRUCTING LESIONS OF THE ESOPHAGUS.** *(E.)* Peterson, T. A. (Minneapolis, Minn.), F. E. Johnson and J. C. Kiser. *Nebraska Med J* 54(6):368-372, 1969.

Resection of an obstructed esophagus with transplantation of the stomach into the chest was performed in 36 patients (squamous cell carcinoma 22, adenocarcinoma 8, stricture 3, achalasia 2, leiomyoma 1) during a 10-yr period. Dysphagia was present in all but 1. X-ray alone was sufficient to diagnose in 28 of the 30 carcinoma patients. All 6 patients with benign disease were alive and well, 1-9 yr after surgery. There were 4 immediate and 3 late postoperative deaths in the cancer group. Eleven died of tumor metastasis and 4 were alive 5 or more yr after resection.

6798 **LEFT COLON TRANSPLANT IN ESOPHAGEAL SURGERY.** *(Fr.)* Reboud, E. (Nord Hosp., Marseille, France), R. Picaud, R. Rouzaud and A. Sarrazin. *Mem Acad Chir (Paris)* 94(10/11):324-333, 1968.

Transplants of the left pedicled colon on the superior left colic artery, after esophageal resection, was performed 34 times in 22 months (19 times presternal, 3 retrosternal and 12 intrathoracic). There were 26 malignant lesions (7 for cure and 19 palliative), and 8 benign lesions. Postoperative mortality was caused by the esophagoplasty in 5 cases (1 necrosis, and 4 fistula) and by general factors in 6. The complications (mortal in cancer patients only) were: 5 fistulas, 10 stenoses and 2 occlusions. Great care must be given to vascularization. A study of possible pedicles for the transverse transplant, of 20 corpses, showed the presence of the superior left colic artery in all, with a constant direction, and a size at least equal to that of the right superior colic artery. The Riolan arch was constant and was oblique, in 14 instances.

6799 **SIMULTANEOUS MEASUREMENT OF INTRALUMINAL PRESSURE AND pH IN THE STOMACH AND OESOPHAGUS WITH SPECIAL REFERENCE TO THE DIAGNOSIS OF HIATAL HERNIA AND HIATAL INCOMPETENCE.** *(E.)* Lockwood, K. (Rigshospitalet, U. Copenhagen, Denmark) and S. Borgeskov. *Thorax* 24(5):589-594, 1969.

Simultaneous measurement of intraluminal pressure and pH in the esophagus and stomach revealed regurgitation in 15 of 23 patients with clinical signs of regurgitation. In only 5 had the diagnosis been confirmed radiologically, and in these the diagnosis was confirmed by pH measurements. Thus in 20 patients (87%) objective confirmation of the patients' symptoms was obtained by pH measurement while X-ray examination was positive in only 20%. A pH of below 4, extending at least 4 cm above the hiatus, was considered as regurgitation. Pressure measurements have been indispensable in determining the position of the pH electrodes. These continuous measurements of pH in the stomach and esophagus, with the patient in different positions, are useful in the diagnosis of incompetence of the cardia and esophageal reflux, and essential in evaluating the results of operative treatment in patients with a hiatal hernia and incompetence of the cardia.

6800 **PREVENTION OF REFLUX FROM THE STOMACH INTO THE OESOPHAGUS.** *(E.)* Harrison, G. K. (St. Thomas' Hosp., London, England) and R. Norton. *Thorax* 24(5):595-598, 1969.

An operation to prevent the reflux of gastric contents into the esophagus, which appears only to fix a length of esophagus in the abdominal cavity, is described. The results of this operation on 51 patients suffering from gastric reflux indicate that a length of lower esophagus in the abdominal cavity acts as a valve on its own merits under these conditions, without ar acute angle of entry into the stomach and without narrowing of the hiatus. In a 'technically satisfactory operation', 3/4 inch (19 mm) or more of esophagus was fixed below the anterior edge of the hiatus with moderate tension. In a 'technically unsatisfactory operation' less esophagus than this was fixed below the hiatus, or marked tension was required to hold it, whatever the length. Of 48 patients with technically satisfactory operations, only 5 had some symptoms of reflux postoperatively.

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6801 MUCOEPIDERMOID CARCINOMA OF THE ESOPHAGUS. REPORT OF TWO CASES. *(E.)* Kay, S. (Med. Coll. Virginia, Richmond). *Cancer* 22(5):1053-1059, 1968.

6802 ATRESIA OF THE OESOPHAGUS AND CONGENITAL TRACHEO-OESOPHAGEAL FISTULA IN INFANTS. *(E.)* Hood, J. H. (U. Queensland, Brisbane, Australia) and M. F. Windsor. *Aust Radiol* 12(1): 49-55, 1968.

6803 CARCINOGENESIS AND OESOPHAGEAL INSULTS. *(E.)* Rose, E. F. (Livingston Hosp., Port Elizabeth, South Africa). *S Afr Med J* 42(14):334-336, 1968.

6804 PALLIATIVE AND RADICAL OPERATIONS IN PATIENTS WITH ACQUIRED ESOPHAGO-TRACHEAL AND ESOPHAGO-BRONCHIAL FISTULAS. *(Rus.)* Perel'man, M. I. (Sci. Res. Inst. Clin. Exp. Surg., Moscow, USSR), E. N. Vantsian and D. M. Bagirov. *Grudn Khir* 10(3):108-115, 1968.

6805 SURGICAL TREATMENT. I. *(Sp.)* Echeverría A., E. *Cir Cir* 35(4):365-372, 1967.

6806 SURGICAL TREATMENT. II. *(Sp.)* Peña y de la Peña, E. and R. López Reyes. *Cir Cir* 35(4): 373-377, 1967.

6807 EXPERIENCE IN SURGICAL TREATMENT. III. *(Sp.)* Anzures, E. *Cir Cir* 35(4):379-388, 1967.

6808 HIATUS HERNIA IN THE AGED: CLINICAL STUDIES. *(It.)* Mansoldo, G. (Verona Hosp., Italy), C. F. Azzini and C. A. Pasoli. *Fracastoro* 62(2):168-176, 1969.

6809 CORROSIVE ESOPHAGITIS. *(Rev.)(E.)* Johnsen, A. F. (Dept. Otolaryngology, U. Minnesota, Minneapolis) and A. J. Duvall. *Minn Med* 52(6): 909-913, 1969.

6810 SURGICAL CONSEQUENCES OF VOMITING. [CASE REPORT] *(E.)* Barrett, F. A. (Cheyenne, Wyo.) and W. E. Reckling. *Rocky Mountain Med J* 66(7): 31-35, 1969.

6811 THE TREATMENT OF ASCITES AND ESOPHAGEAL VARICES. *(Rev.)(E.)* Spellberg, M. A. (Michael Reese Hosp., Chicago, Ill.). *Amer J Gastroent* 51(3):208-226, 1969.

6812 THE CLINICAL APPLICATION OF INTRALUMINAL ESOPHAGEAL MANOMETRY. [EDITORIAL] *(E.)* Affolter, H. (Munic. Hosp., Basel, Switzerland). *Digestion* 2(4):242-244, 1969.

6813 USE OF THE SOUTTAR TUBE IN THE MANAGEMENT OF ADVANCED ESOPHAGEAL CANCER. *(E.)* Zimmerman, J. M. (Johns Hopkins Hosp., Baltimore, Md.) and T. C. King. *Ann Surg* 169(6):867-872, 1969.

6814 ACHALASIA AND CARCINOMA OF THE ESOPHAGUS. *(Rev.)(E.)* Just-Viera, J. O. (U. Michigan Med. Sch., Ann Arbor) and C. Haight. *Surg Gynec Obstet* 128(5):1081-1095, 1969.

6815 PERFORATION OF THE ESOPHAGUS: A COMPLICATION OF VAGOTOMY OR HIATAL HERNIA REPAIR. [CASE REPORT] *(E.)* McBurney, R. P. (U. Tennessee Med. Sch., Memphis). *Ann Surg* 169(6):851-856, 1969.

6816 ESOPHAGITIS: DIAGNOSIS AND SURGICAL TREATMENT. *(E.)* Cocco, A. E. (St. Joseph Hosp., Towson, Md.) and O. C. Brantigan. *Ann Surg* 169(6): 857-866, 1969.

6817 SURGICAL ASPECTS OF HIATUS HERNIA. *(Fl.)* Lacquet, L. K. (Stappaertsgasthuis, Antwerp, Belgium). *T Gastroent* 12(2):113-124, 1969.

6818 HYPOSOMIC NANISM AND MEGALO-ESOPHAGUS. DESCRIPTION OF A PEDIATRIC CASE. *(It.)* Vignoli, G. (G. Gaslini Pediat. Clin., U. Genoa, Italy) and R. Bruni. *Minerva Pediat* 21(22):1004-1008, 1969.

6819 RADIOLOGICAL FINDINGS AFTER HIATUS HERNIA OPERATIONS. *(Fl.)* de Bergeyck, E. (Stappaertsgasthuis, Antwerp, Belgium). *T Gastroent* 12(2): 125-131, 1969.

6820 ANAESTHETIC MANAGEMENT OF ATREASIA OF THE OESOPHAGUS IN THE NEWBORN. *(E.)* Oduntan, S. A. (U. Teachin Hosp., Ibadan, Nigeria). *W Afr Med J* 18(3):109-110, 1969.

6821 EXCISION OF OESOPHAGEAL VARICES. *(E.)* Self, J. B. (Leicester Gen. Hosp., England). *Thorax* 24(4):435-440, 1969.

6822 INCARCERATED PARAESOPHAGEAL HIATAL HERNIA AFTER TRANSABDOMINAL VAGOTOMY: REPORT OF A CASE SIMULATING STOMAL DYSFUNCTION. *(E.)* Witte, C. L. (City Hosp., St. Louis, Mo.). *Southern Med J* 62(9):1134-1136, 1969.

6823 CORROSIVE ESOPHAGITIS. ACUTE MANAGEMENT WITH A CASE REPORT OF EARLY SURGICAL INTERVENTION. *(E.)* Hennessy, M. (U. Minnesota Med. Sch., Minneapolis). *Minn Med* 52(10):1661-1663, 1969.

6824 HETEROTOPIC GASTRIC MUCOSA IN THE CERVICAL ESOPHAGUS. A POSSIBLE CAUSE OF FATAL ASPIRATION. [CASE REPORT] *(E.)* Libcke, J. H. (Letterman Gen. Hosp., San Francisco, Calif.). *Pediatrics* 44(3):447-448, 1969.

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6825 ESOPHAGOPLEURAL FISTULA: A COMPLICATION OF LOBECTOMY, REPORT OF AN UNUSUAL CASE. *(E.)* Konsuwan, N. (Cent. Chest Hosp., Nonburi, Thailand) and K. Chatikavanich. *J Lancet* 87(11): 450-452, 1967.

6826 ACUTE MASSIVE HEMATEMESIS AS SOLE PRESENTING SYMPTOM IN A CASE OF SLIDING HIATUS HERNIA. *(E.)* Natarajan, K. (Stanley Med. Coll., Madras, India) and E. Thomas. *Indian Pract* 22(12): 137-139, 1969.

6827 DISEASES OF THE CANINE ESOPHAGUS DUE TO PRENATAL INFLUENCE. *(E.)* Clifford, D. H. (VA Hosp., Houston, Tex.) and R. Malek. *Amer J Dig Dis* 14(8):578-602, 1969.

6828 BLEEDING ESOPHAGEAL VARICOSIS IN A 13-YEAR-OLD BOY. [CASE REPORT] *(Pol.)* Zawartka, Z. (Munic. Pediat. Hosp., Wroclaw, Poland). *Pediat Pol* 42(8):985-988, 1967.

6829 THE MORPHOGENESIS OF ESOPHAGEAL CANCER. *(Rus.)* Cherkasskii, L. A. (Orenburg Med. Inst., USSR) and S. V. Baidukov. *Vop Onkol* 13(12): 23-29, 1967.

6830 CARCINOMA IN EPIPHRENIC DIVERTICULA. *(E.)* Thomas, R. C. (VA Hosp., Buffalo, N. Y.). *Ann Thorac Surg* 6(1):85-87, 1968.

6831 HIATUS HERNIA IN CHILDHOOD. REPORT OF FIVE CASES. *(E.)* Hanafy, M. M. (Fac. Med., U. Alexandria, Egypt), S. Akkary, M. Shaker, and S. El-Khateeb. *Alexandria Med J* 14(5/6):276-288, 1968.

6832 POST-EMETIC RUPTURE OF THE ESOPHAGUS. [CASE REPORT] *(E.)* Meckstroth, C. V. (Ohio State U. Hosp., Columbus) and A. M. Broennle. *Ohio Med J* 64(1):69-72, 1968.

6833 A METHOD FOR DETERMINING DOSAGE IN ROTATION ROENTGENTHERAPY OF CARCINOMA OF THE ESOPHAGUS. *(E.)* Szymczyk, W. (Krakow Br., Inst. Oncol., Poland), J. Siuda, Z. Drejak and J. Kujawska. *Pol Rev Radiol Nucl Med* 32(2):255-262, 1968.

6834 ESOPHAGEAL INTRAMURAL DIVERTICULOSIS. *(E.)* Zatzkin, H. R. (Meadowbrook Hosp., East Meadow, N. Y.), S. Green and J. J. LaVine. *Radiology* 90(6): 1193-1194, 1968.

6835 THE DIGESTIVE TRACT IN SCLERODERMA: RADIOLOGICAL STUDY. I. THE ESOPHAGUS AND THE CARDIAC STOMACH. *(It.)* Alè, G. (Dermatol. Clin., U. Milan, Italy) and G. Pompili. *Radiol Med (Torino)* 54(5):448-485, 1968.

6836 HIGH DYSPHAGIA. *(E.)* Dietz, M. W. (U. Missouri Sch. Med., Springfield). *Missouri Med* 65(5):372-375, 1968.

6837 HERNIA OF ESOPHAGEAL HIATUS AS A CAUSE OF SIDEROPENIC ANEMIA. *(Ser.)* Novak, S. (Med. Fac., Rijeka, Yugoslavia), M. Matejčić and V. Čabrijan. *Acta Fac Med* 1(1):249-255, 1966.

6838 HYPERTROPHIC PYLORIC STENOSIS COMPLICATING ESOPHAGEAL ATRESIA WITH TRACHEOESOPHAGEAL FISTULA. [CASE REPORT] *(E.)* Franken, E. A. Jr. (Indiana U. Med. Ctr., Indianapolis) and R. M. Saldino. *Amer J Surg* 117(5):647-649, 1969.

6839 ESOPHAGEAL VARICES IN THE "CARLOS J. BELLO" HOSPITAL IN CARACAS. DIAGNOSIS AND TREATMENT. *(Sp.)* Candia Candia, E. ("Carlos J. Bello" Hosp., Caracas, Venezuela), J. Plaza Castes, C. G. Rodriguez N., and G. Seijas C. *GEN* 23(1):19-32, 1968.

6840 HIATAL HERNIA ASSOCIATED WITH PATHOLOGICAL CHANGES IN THE PYLORUS. *(Por.)* Paulino, F., U. Martins and A. Hissa. *Hospital (Rio)* 72(2):335-348, 1967.

6841 MALLORY-WEISS SYNDROME. *(Por.)* Iuchtman, M. *Hospital (Rio)* 72(2):581-584, 1967.

6842 THE SHORT ESOPHAGUS. *(It.)* Bifani, I. (Inst. Pediat. Surg., U. Naples, Italy). *G Ital Chir* 23(2):249-275, 1967.

6843 ESOPHAGEAL VARICES OF EXPERIMENTAL MORPHOGENESIS FOR CLINICAL PATHOLOGY. *(Sp.)* Domini, R. (Inst. Special Surg. Pathol., U. Bologna, Italy). *Int Surg* 49(5):473-477, 1968.

6844 MANAGEMENT OF BLEEDING OESOPHAGEAL VARICES. *(E.)* Williams, R. (King's Coll. Hosp. Med. Sch., London, England) and J. Dawson. *Brit Med J* 1:35-37, 1968.

6845 THORACIC ESOPHAGUS DIVERTICULA. *(E.)* Romero Calatayud, A. (Valencia Soc. Digestive Pathol., Spain) and E. Vidal Colomer. *Rev Esp Enferm Apar Dig* 27(4):550-562, 1968.

6846 DIAGNOSIS AND TREATMENT OF BENIGN TUMORS AND CYSTS OF THE ESOPHAGUS. *(Rus.)* Utkin, V. V. (Latvian Res. Inst. Exp. Clin. Med., Riga, USSR) and N. A. Balynia. *Vop Onkol* 14(4):21-24, 1968.

6847 PSEUDOSARCOMA WITH POLYPOUS CARCINOMA OF THE ESOPHAGUS–A REPORT OF TWO CASES WITH DIFFERENTIATION FROM CARCINOSARCOMA. *(Jap.)* Sasano, N., K. Takahashi, Y. Takezawa, H. Masuda, Y. Kaneko and T. Tajima. *Jap J Cancer Clin* 14(11):973-981, 1968.

6848 RESULTS OF RADIATION THERAPY OF THE MIDDLE-THIRD ESOPHAGEAL CANCER. *(Jap.)* Kaneta, K., S. Okano, H. Goto, S. Sawaki and A. Tsuya. *Jap J Cancer Clin* 14(10):860-870, 1968.

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849 **MATERIAL PERTAINING TO THE MORTALITY RATE FROM ESOPHAGEAL CANCER AMONG THE POPULATION OF GURJEVSK REGION.** *(Rus.)* Kramchaninov, N. F. (Alma-Ata, USSR). *Vop Onkol* 14(2): 38-42, 1968.

6850 **ZENKER'S DIVERTICULUM.** *(Sl.)* Bencúr, H. M. (Med. Fac., Comenius U., Bratislava, Czechoslovakia) and V. Chorváth. *Cesk Radiol* 22(2):90-93, 1968.

6851 **USE OF COLON AS A SUBSTITUTE OR BY-PASS FOR THE ESOPHAGUS.** *(E.)* Mehta, M. J. (B. J. Med. Coll., Poona, India). *Indian J Surg* 29(12): 666-678, 1967.

6852 **STRANGULATED DIAPHRAGMATIC HERNIA. [CASE REPORT]** *(E.)* Singh, A. (Med. Coll., Amritsar, India) and G. Singh. *Indian J Surg* 29(12):698-701, 1967.

6853 **DYSPHAGIA CAUSED BY CERVICAL ARTHROSIS.** *(Fr.)* Desnos, J. (Ingers, France). *Ouest Med* 21(1):3-14, 1967.

6854 **CARCINOMA OF THE CERVICAL ESOPHAGUS AND HYPOPHARYNX: A BETTER SOLUTION TO RECONSTRUCTION.** *(E.)* Foster, R. P. (Physicians Surg. Clin., Alexandria, La.), H. L. Prevost, J. T. Cappel and B. Parker. *J Louisiana Med Soc* 119(11):432-435, 1967.

6855 **TRANSTHORACIC REPAIR OF ESOPHAGEAL HIATAL HERNIA: AN APPRAISAL OF 75 CONSECUTIVE CASES.** *(E.)* Beskin, C. A. (Baton Rouge, La.). *J Louisiana Med Soc* 119(12):482-487, 1967.

6856 **TREATMENT OF CANCER OF THE ESOPHAGUS WITH CYTOSTATICS SP-G AND SP-I [PRORESID]. PRELIMINARY REPORT.** *(Por.)* Guida Filho, B. (Pontifical Catholic U., Sorocaba, Brazil) and A. P. Mirra. *Hospital (Rio)* 72(2):633-640, 1967.

6857 **RADIOLOGIC STUDIES OF THE GASTRO-ESOPHAGEAL VESTIBULE IN NORMAL AND PATHOLOGIC STATES.** *(E.)* Marciniak, R. (Med. Acad. Wroclaw, Poland). *Acta Radiol [Diagn] (Stockholm)* 6(6): 537-544, 1967.

6858 **SPONTANEOUS RUPTURE OF THE ESOPHAGUS. [CASE REPORT]** *(E.)* Drinkwater, J. B. (Royal Naval Hosp., Haslar, England). *Proc Roy Soc Med* 62(7):644-645, 1969.

See also: 6511,6785,6914,6917,7454

# STOMACH

## (Gastric ulcer is placed with peptic ulcer)

6859 **GASTRIC EMPTYING IN HYPO- AND HYPER-ACIDITY.** *(It.)* Venturoli, L. (Inst. Radiol., U. Pisa, Italy). *Arch Ital Mal Appar Dig* 35(4):364-374, 1969.

A radiological method for evaluating gastric hypo- or hyperacidity is proposed. Observations made on 30 healthy subjects (19 men and 11 women, 15-80 yr of age) demonstrated that in 13 subjects with hypoacidity, the administration of Ewald's meal immediately after the administration of a barium sulphate suspension delays gastric emptying (3-4.45 hr) in contrast to when it is administered 1 hr after the barium meal (2.15-4 hr). In 17 subjects with hyperacidity, gastric emptying was more rapid when Ewald's meal and the barium suspension was administered without any interval (3.15-4.30 hr) than when an hour intervened (4.15-6 hr). On the basis of current theories concerning the mechanism of gastric emptying, the author suggests an interpretation of the phenomenon which gives proper weight to existing chemical conditions.

6860 **PATHOLOGICAL STUDY OF METASTATIC INVOLVEMENTS OF THE STOMACH CANCERS. II.** *(E.)* Yamagiwa, H. (Mie Prefectural U. Sch. Med., Tsu, Japan). *Mie Med J* 18(2):99-106, 1969.

An 8 yr review of autopsy reports of stomach cancer patients included 9601 cases (3283 female, 6318 male). Stomach cancers occur more frequently between 50 and 70 yr of age (72% of males, 62% of female). Below 50, they occur more frequently in females than in males. The male to female ratio is 3:1. Metastases to the liver, gallbladder, kidney and skin occur more frequently in the older. Metastases to the lung, heart (pericardium), spleen, thymus, meninges, brain, skeletal muscle, urogenital organs, mammary gland, thyroid gland, and hypophysis occur more frequently in the younger. The liver (46%), lung (27.7%), pancreas (21.4%), adrenal (16.2%), and bone (12.7%) are the most frequent metastatic sites. The kidney (8.4%), and spleen (7.5%) are less frequently involved. Metastases to the lung, pancreas, urinary bladder, heart, thyroid, parathyroid, hypophysis, bone, and thymus occur somewhat more often in females. Those to the liver and brain more often in males. Differentiated carcinomas of the stomach metastasize to distant organs more frequently than undifferentiated ones. The latter were found to infiltrate sooner, however. In early life, the histological features of the tumors were more often found to consist of carcinoma simplex, carcinoma diffusa or undifferentiated carcinoma, especially in females. Of malignant neoplasms found at autopsy in association with stomach cancer, cancers of the lung (39), esophagus (29), thyroid (32), rectum (14), colon (15), and kidney (13) constituted the majority. Of the nonepithelial malignant neoplasms, reticulosarcomas (6), multiple myelomas (6), and acute myeloid leukemias (6) were noted more frequently than others. The age distribution of the malignant neoplasms associated with stomach cancers shows a peak incidence between 60 to 70 yr of age. In females, the peak incidence is in the 70 to 80 age group. The male to female ratio is 3:1.

6861 **ROENTGENOLOGICAL CHARACTERISTICS OF MESENCHYMAL TUMOURS OF THE STOMACH. A RETROSPECTIVE STUDY OF 59 PATIENTS.** *(E.)* Salmela, H. (2nd Clin. Surg., Helsinki, Finland) and R. Kohler. *Ann Clin Res* 1(1):57-63, 1969.

A retrospective study was made of 59 barium meal examinations of mesenchymal tumors of the stomach during the yr 1953-60. Six leiomyosarcomas out of 8 appeared as a malignant mass in the stomach, but out of 18 leiomyomas only 1 showed malignant features. Distinguishing leiomyosarcoma and malignant lymphoma from carcinoma was difficult in the majority of cases. Findings definitely belying carcinoma were seen in only 4 patients out of 25. It was impossible to distinguish roentgenologically between the different benign mesenchymal tumors of the stomach. An X-ray examination with a barium meal would seem, however, to afford a relatively good chance of deciding whether the mesenchymal gastric tumor detected is benign or malignant.

6862 **THE SIGNIFICANCE OF CLASS III CELLS IN THE GASTRIC CYTOLOGY.** *(E.)* Miyake, T. (Tenri Hosp., Kyoto, Japan), Y. Yamamoto, J. Ariyoshi, Y. Takahashi, H. Furukawa, T. Suzaki, K. Hajiro and H. Kuzuya. *Jap Arch Intern Med* 16(1):1-11, 1969.

Fibergastroscopic washing cytology was performed before operation in 117 histologically proven cases. Cytodiagnosis of class III cells was made in 27 cases, 17 of which proved to be benign and 10 to be malignant. Correct cytodiagnosis was mad in 86.2% using routine classic staining methods; but with the addition of the phase-contrast microscopic technique it increased to 92.1% through improved results in benign adenomatous polyp and benign chronic ulcer. Cellular morphology of malignant class III cells is identical with that of advanced cancer cells which are classified as class IV or V by phase-contrast microscopy. Nonmalignant class III cells, which are round, oval or sometimes irregular, have compact nucleoi with scanty vesicularity, even if large. Golgi apparatus is small and mucin-excretion is recognizable. Frequently phase-contrast microscopic study of the reticular structure of the nucleoli serves to differentiate cancer cells from noncancer cells among the class III cells, as well as from benign atypical cells. There is a relationship between the clear filamentous reticular structure of the nucleoli and an increase in the nucleolar RNA, which is further substantiated by fluorescence and electron microscopic examinations. As the RNA increases, tight spiral cords may become loosened gradually into fine filaments, forming networks. In malignant cases the ratio of cells with loosen nucleoli was 100%, in benign cases, 3%.

6863 **GASTRIC BYPASS.** *(E.)* Mason, E. E. (Dept. Surg., U. Iowa, Iowa City) and C. Ito. *Ann Surg* 170(3):329-339, 1969.

Gastric by-pass, an extended exclusion operation with gastroenterostomy, was used in 32 patients. In 24 obese patients (12 male, 12 female), 2 of whom had duodenal ulcers, 90% of the stomach was excluded and, in 8 normal weight patients with duodenal ulcers, 70% of the stomach was excluded. Ulce symptoms were relieved. One jejunal ulcer developed in a woman who had had a duodenal ulcer. The operation is not recommended for treatment of acid peptic disease. One obese patient died postoperatively of peritonitis and congestive heart failure. Another died of a pulmonary embolus. The average weight loss postoperatively was 86 pounds. Half the patients had dumping syndrome symptoms postoperatively. Obese patient respond sufficiently well after weight loss to justify the procedure provided they are physically active, young or middle-aged and weigh 200% of estimated normal body weight. Some weight reduction may be required, in the hospital before surgery.

### 6864 APPLICATION OF WHOLE BODY COUNTING TO THE MEASUREMENT OF VITAMIN $B_{12}$ ABSORPTION WITH REFERENCE TO ACHLORHYDRIA.

*(E.)* Finlayson, N. D. C. (Royal Infirm. Edinburgh, Scotland), J. D. Simpson, P. Tothill, R. R. Samson, R. H. Girdwood and D. J. C. Shearman. *Scand J Gastroent* 4(5):397-405, 1969.

Since sequential scanning may detect errors due to unabsorbed and unexcreted radioactivity, 300 vitamin $B_{12}$ absorption tests were carried out by whole body counting on 100 fasting patients (31 with pernicious anemia and achlorhydria, 12 with no pernicious anemia but with achlorhydria, 13 who had undergone partial gastrectomy, 19 with malabsorption and 24 controls) and 37 patients who were fed before testing (11 with pernicious anemia and achlorhydria, 6 with no pernicious anemia but with achlorhydria, 7 who had undergone partial gastrectomy, 2 with malabsorption and 11 controls). There was a poor correlation between 2 successive absorption tests in the same patient in the fasting state. The correlation improved when $B_{12}$-free meals were used, particularly in controls and in achlorhydric patients without pernicious anemia. Single tests in the fasting state could not always distinguish between patients with and those without pernicious anemia. No constant correlation between intrinsic factor production following histamine or pentagastrin stimulation and vitamin $B_{12}$ absorption could be found in achlorhydric patients without small intestine disease.

### 6865 RESPIRATORY FAILURE, HYPOTENSION, SEPSIS AND JAUNDICE. A CLINICAL SYNDROME ASSOCIATED WITH LETHAL HEMORRHAGE FROM ACUTE STRESS ULCERATION OF THE STOMACH.

*(E.)* Skillman, J. J. (Harvard Med. Sch., Boston, Mass.), L. S. Bushnell, H. Goldman and W. Silen. *Amer J Surg* 117(4):523-530, 1969.

A clinical syndrome of massive bleeding from acute multiple gastric ulcers associated with respiratory failure, hypotension sepsis (gram negative), and jaundice developed in 8 (4 male, 4 female, average age 62) of 150 consecutive patients admitted to a respiratory-surgical intensive care unit. These ulcers were almost all located in the fundus of the stomach. Only 1 of the 8 survived. Twenty-one gastric secretory studies (basal and histamine stimulated) performed in 18 critically ill patients indicate that increased acid secretion may be cause of this syndrome. One patient in whom acute gastric ulceration later developed had a maximally stimulated parietal cell mass in the basal state. Patients with this potentially lethal comparison who do not respond to nonoperative therapy are probably best treated by gastric resection and vagotomy.

### 6866 COMPARATIVE BIOLOGICAL TEST STUDY OF INTRINSIC FACTOR ACTIVITY OF GASTRIC JUICE MEASURED BY THE METHOD WITH GUINEA PIG INTESTINE OR BY SCHILLING'S TEST. 101 DETERMINATION.

*(Fr.)* Wolff, R. (Fac. Med., Nancy, France), J. P. Nicolas and F. Georges. *Ann Med Nancy* 7:1585-1598, 1968.

Two tests were carried out to determine intrinsic factor (I.F.) activity in 72 patients with megaloblastic anemia, and in 29 normal subjects: the urinary secretion test of Schilling, recording the physiological transit of a radioactive dose of vitamin $B_{12}$, and the biological test with guinea pig intestine showing the I.F. activity *in vitro* in the gastric juice. In 29 normal subjects the values of Schilling's test ranged between 8-47%, and the intestinal fixation of vitamin $B_{12}$ was markedly higher than base values (35 cpm/100 mg tissue) and ranged between 47-357 cpm, showing a normal activity of I.F. in the gastric juice. In 57 cases of pernicious anemia, with Schilling's test values lower than 8%, the intestinal fixation of vitamin $B_{12}$ ranged between 0-27 cpm/100 mg tissue, showing a total absence of I.F. Among 6 subjects with gastrectomy-induced anemia, 5 had a Schilling's test lower than 3% and no intestinal fixation of vitamin $B_{12}$ *in vitro*. Study of 8 patients with malabsorption syndromes showed Schilling test values between 0.3-4.3%, and an I.F. activity in gastric juice ranging from 88 to 438 cpm/100 mg tissue. The 2 methods seem to be complementary and appear to be useful in the diagnosis and pathogenesis of megaloblastic anemia.

### 6867 CHEMICAL BURNS OF THE STOMACH.

*(Rus.)* Kalichenko, I. I. (Postgrad. Inst. Med., Kiev, USSR) and V. P. Cholalia. *Klin Khir (Kiev)* (9):35-42, 1968.

Between 1948 and 1967 at the Medical Institute, Kiev, 27 patients (17 male, 10 female) were treated for chemical burns of the stomach, caused by sulfuric acid in 12, hydrochloric acid in 6, acetic acid in 2, caustic soda in 2, soldering fluid in 1, formalin in 1, and unidentified agents in 3. The patients were seen 5 hr to 44 yr after ingestion. No deaths occurred in the group of 20 treated operatively, but 1 death occurred in the 7 treated conservatively. The operative procedures were: 9 resections of the stomach, 6 gastroenterostomies, 1 resection of the stomach with gastrostomy, 1 gastroesophagostomy and 3 gastrostomies. Of the 20 cases operated upon follow-up was obtained in 6 after 1.5-9 yr: all were well and were not restricted in diet: 3 are working, 2 are children and 1 is retired.

### 6868 CORROSIVE GASTRITIS FROM INGESTION OF CAUSTIC MATERIALS.

*(Fr.)* Desmul, A. (Brugmann U. Hosp., Free U. Brussels, Belgium), J. J. Desneux, P. Kinnaert and J. van Geertruyden. *Acta Chir Belg* 67(3):281-291, 1968.

Endoscopic examinations or laparotomies were performed in 16 patients soon after deglutition of caustic materials. The high mortality in persons after HCl ingestion is explained by the frequency of severe lesions. Although serious damage (bleeding and tissue necrosis) occurs within the first 48 hr, there is in every instance a 8-12 hr interval before collapse. Thus, at the first signs of poisoning a laparotomy is indicated, before the onset of general peritoneal damage. Prediction of the seriousness of the lesions is not possible; 4 of 6 patients suffered only superficial injury after HCl ingestion. In some cases, in spite of severe initial necrosis, the gastric wall was not perforated. However, sclerosis of the antropyloric region can result from inflammation. The 2 patients who suffered formaldehyde solution and potassium sulfocyanide poisoning developed stenosis of the distal sections of the stomach and gastrectomy was required in both. Minimal lesions and sub-mucosal bleeding were seen in 2 cases of ammonium hydroxide poisoning. Similar lesions resulted from ingestion of mercury and potassium permanganate. These patients recovered without aftereffects and did not require surgery. These agents did not produce necrotic areas in the esophagus and stomach, as did the stronger caustics; esophageal injury was infrequent and gastric lesions much more diffuse. Therefore, prompt gastric lavage is effective for these weaker caustics.

6869 **THE EFFECT OF A G-SUIT ON PROVOKED DUMPING ATTACK.** *(E.)* Christoffersson, E. (Sahlgrenska Sjukhuset, U. Göteborg, Sweden), J. Bjure and D. H. Lewis. *Ann Surg* 170(1):137-141, 1969.

The effect of an inflated G-suit on symptoms of a provoked dumping attack has been studied in 10 patients suffering from severe to moderate dumping after partial gastrectomy. Inflation of the G-suit was associated with improvement in cardiovascular symptoms in all but 2 patients. (In these patients inflation of the G-suit resulted in severe abdominal pain.) There was only minimal improvement in gastrointestinal symptoms. The results of the investigation support the thesis that, at least in some cases, an inadequate circulatory compensatory mechanism is responsible for the cardiovascular part of the syndrome. The results also support the suggestion that the symptoms of the dumping reaction are not specific.

6870 **PRIMARY MALIGNANT HEMANGIOENDOTHELIOMA OF THE GREATER OMENTUM. A CASE REPORT.** *(E.)* Kalisher, L. (Wayne State U. Sch. Med., Detroit, Mich.), G. W. Straatsma, B. F. Rosenberg and V. K. Vaitkevicius. *Cancer* 22(6):1126-1130, 1968.

6871 **NEOPLASMS OF THE STOMACH OTHER THAN CARCINOMA WITH REPORT OF A CASE.** *(E.)* Thompson, H. L. (Los Angeles, Calif.). *Bull Soc Int Chir* 27(6):546-549, 1968.

6872 **GASTRIC PERFORATION IN A NEW BORN. [CASE REPORT]** *(E.)* Beck, A. R. (Mt. Sinai Hosp., New York, N. Y.). *J Mount Sinai Hosp NY* 35(2): 300-306, 1968.

6873 **ENDOSCOPY IN THE DIAGNOSIS OF GASTRIC LYMPHOMA AND SARCOMA.** *(E.)* Nelson, R. S. (U. Texas M. D. Anderson Hosp., Houston) and F. L. Lanza. *Amer J Gastroent* 50(1):37-46, 1968.

6874 **PYLORIC MUCOSAL DIAPHRAGMS.** *(E.)* Farman, J. (Groote Schuur Hosp., Cape Town, South Africa), S. Cywes and L. Werbeloff. *Clin Radiol* 19(1): 95-99, 1968.

6875 **A CASE OF MICROANGIOPATHIC HEMOLYTIC ANEMIA DUE TO DISSEMINATED METASTASIS OF GASTRIC CANCER.** *(Jap.)* Sakamoto, S. (Tohoku U. Sch. Med., Sendai, Japan), A. Shibata, S. Onodera, A. B. Miura, A. Suzuki, C. Suzuki and T. Mouri. *Acta Haemat Jap* 31(3):307-317, 1968.

6876 **STOMACH CANCER METASTASIS INTO THE SKIN AND TONSILS. [CASE REPORT]** *(Rus.)* Miagkii, M. A. *Vop Onkol* 14(2):88-90, 1968.

6877 **ACETYLATING COENZYME IN THE BLOOD OF STOMACH CANCER PATIENTS.** *(Rus.)* Podil'chak, M. D. (Lvov Med. Inst., USSR) and V. I. Skorokhid. *Vop Onkol* 14(2):101, 1968.

6878 **TRIGLYCERIDES IN PLASMA FOLLOWING PARTIAL GASTRECTOMY.** *(E.)* Kirkeby, K. (Ullevål Hosp., Oslo, Norway), K. Overskeid and I. Bjerkedal. *Acta Med Scand* 182(3):307-310, 1967.

6879 **RARE CASE OF A FOREIGN BODY IN THE STOMACH.** *(Rus.)* Kunakov, Iu. V. (Voronezh Munic. Clin. Hosp. No. 17, USSR). *Klin Med (Moskva)* 45(10): 137-138, 1967.

6880 **LYMPHOGRANULOMATOSIS OF THE STOMACH.** *(Rus.)* Zverev, G. I. (Vologod Regional Oncol. Dispensary, USSR) and V. A. Sadovskaia. *Vestn Khir Grekov* 99(11):121-122, 1967.

6881 **SEQUELAE OF CANCER OF THE STOMACH RESECTED SIX YEARS PREVIOUSLY.** *(E.)* Scannell, J. G. (Massachusetts Gen. Hosp., Boston) and B. Castleman. *New Eng J Med* 281(5):261-267, 1969.

6882 **GASTRIC TUBERCULOSIS SIMULATING A COMPLICATED TUMOR-LIKE FORM. [CASE REPORT]** *(E.)* Tuchel, V. (P. T. T. Hosp., Bucharest, Romania), R. Macarie, E. Lauch, P. Fesiuc and M. Zaharia. *Digestion* 2(4):237-241, 1969.

6883 **PYLORUS IDENTIFICATION.** *(E.)* Blackwood, W. D. (VA Hosp., Minneapolis, Minn.). *Gastroenterology* 57(2):163-167, 1969.

6884 **GASTRIC CHANGES DURING AN ATTACK OF ACUTE INTERMITTENT PORPHYRIA. [CASE REPORT]** *(E.)* Otte, R. C. (Dixie Hosp., Hampton, Va.). *Radiology* 93(3):673-674, 1969.

6885 **JEJUNAL SEGMENTS FOR THE POSTGASTRECTOMY SYNDROMES.** *(Rev.)(E.)* Rutledge, R. H. (Fort Worth, Tex.). *Ann Surg* 169(5):810-828, 1969.

6886 **CYTOLOGICAL EVIDENCE FOR THE LONG "QUIESCENT" STAGE OF GASTRIC CANCER IN 2 PATIENTS WITH PERNICIOUS ANEMIA.** *(E.)* Loux, H. A. (Harvard Med. Sch., Boston, Mass.) and N. Zamcheck. *Gastroenterology* 57(2):173-184, 1969.

6887 **THE AUTOIMMUNE ASPECTS OF PERNICIOUS ANEMIA. [EDITORIAL]** *(E.)* Goldberg, L. S. (U. California Med. Ctr., San Francisco) and H. H. Fudenberg. *Amer J Med* 46(4):489-494, 1969.

6888 **GASTRIC TERATOMA IN A NEWBORN. [CASE REPORT]** *(Fr.)* Lebreuil, G. (Anat. Soc. Paris, France), L. Garbe and H. Payan. *Arch Anat Path (Paris)* 17(1):47-50, 1969.

6889 **GASTRIC PLASMACYTOMA. [CASE REPORT]** *(E.)* Line, D. H. (West London Hosp., England) and R. H. Lewis. *Gut* 10(3):230-233, 1969.

6890 **GASTROJEJUNAL MUCOSAL PROLAPSE AFTE SUBTOTAL GASTRECTOMY. [CASE REPORT]** *(E.)* Shane, M. D. (VA Hosp., San Francisco, Calif.), J. R. Amberg and G. Szemes. *Calif Med* 111(3):177-180, 1969.

6891 **HEALING OF GASTRIC WOUNDS DURING THERAPY WITH ENDOXAN.** *(Pol.)* Stadnik, J. (3rd Surg. Clin., Silesian Acad. Med., Bytom, Poland) and M. Wieczorek. *Pol Przegl Chir* 41(4):406-412, 1969.

6892 **LEIOMYOBLASTOMA OF THE STOMACH. A SOURCE OF ACUTE GASTROINTESTINAL BLEEDING.** *(E.)* Ugaz, J. E. (Scott & White Clin., Temple, Tex.) and G. V. Brindley Jr. *Scott White Med* 5(2):97-102, 1969.

6893 **CARCINOMA OF THE STOMACH.** *(Rev.)(E.)* Herrington, J. L. Jr. (U. Tennessee Coll. Med., Memphis). *J Tenn Med Ass* 62(8):710-713, 1969.

6894 **CORROSIVE STRICTURE OF THE STOMACH IN A PHOSPHORUS WORKER.** *(E.)* Read, R. C. (VA Hosp., Little Rock, Ark.) and H. J. White. *J Arkansas Med Soc* 66(3):96-99, 1969.

6895 **GASTRIC OUTLET OBSTRUCTION FOLLOWING ALKALI INGESTION. [CASE REPORT]** *(E.)* Wilson, W. H. (Ohio State U. Coll. Med., Columbus), F. G. Winegarner and J. E. Jesseph. *Ohio Med J* 65(10):1000–1003, 1969.

6896 **GASTRIC POLYPOSIS. [CASE REPORT]** *(E.)* Beal, J. M. (Passavant Mem. Hosp., Chicago, Ill.). *Illinois Med J* 136(3):242-245, 1969.

6897 **ASPIRIN GASTRITIS EXAMINED WITH INTRAGASTRIC PHOTOGRAPHY.** *(E.)* Hoon, J. R. (Sheboygan Clin., Wis.). *Industr Med Surg* 38(8):52-62, 1969.

6898 **GASTRIC SARCOIDOSIS. [CASE REPORT]** *(E.)* Kater, R. M. H. (Royal Prince Alfred Hosp., Sydney, Australia) and G. F. H. Stening. *Aust New Zeal J Surg* 37(2):174-176, 1967.

6899 **REPEATED CANCER SURGERY ON THE GASTRIC STUMP.** *(Rus.)* Gaponenko, M. F. (Kaliningrad Hosp. No. 2, USSR). *Vestn Khir Grekov* 99(9): 115-116, 1967.

6900 **CLOSING THE DUODENAL STUMP.** *(Rus.)* Mel'nik, L. A. (Crimean Med. Inst., Simferopol, USSR). *Klin Khir (Kiev)* (8):30-33, 1967.

6901 **RADIOLOGICAL ASPECTS OF BENIGN NEUROGENIC TUMORS OF THE STOMACH.** *(It.)* Passariello, R. (Inst. Radiol., U. Perugia, Italy), P. G. Pazzaglia and A. Taccari. *Ann Fac Med Chir* 59(2):251-265, 1967.

6902 **PATIENT CONDITION AFTER BILLROTH II GASTRECTOMY.** *(Rus.)* Rusanov, A. A. (Leningrad Pediat. Med. Inst., USSR). *Vestn Khir Grekov* 99(11):61-69, 1967.

6903 **A TECHNIQUE FOR THE CLOSING OFF THE END OF THE DUODENUM IN GASTRECTOMY.** *(Rus.)* Chervenkov, P. G. (Postgrad. Med. Inst., Varny, Bulgaria). *Vestn Khir Grekov* 99(11):119-120, 1967.

6904 **TUBERCULOUS ULCER OF THE STOMACH. [CASE REPORT]** *(E.)* Sharma, R. N. (Railway Main Hosp., Dohad, India). *J Indian Med Ass* 49(4):186-187, 1967.

6905 **DIVERTICULA IN THE CARDIUM OF THE STOMACH.** *(Pol.)* Dźurak, W. (Dept. Radiol., Warsaw Acad. Med., Poland) and J. Witkowska. *Pol Przegl Radiol* 31(4):567-573, 1967.

6906 **AUTOIMMUNOLOGICAL FACTORS IN ATROPHIC CATARRH OF THE GASTRIC MUCOSA.** *(Pol.)* Tarnawski, A. (Acad. Med. Krakow, Poland) and B. Batko. *Przegl Lek* 23(4):373-376, 1967.

6907 **COMBINATION OF LYMPHORETICULOSARCOMATOSIS AND ADENOCARCINOMA OF THE STOMACH.** *(Rus.)* Anikin, B. S. (Kuibyshev Med. Inst., USSR). *Klin Med (Moskva)* 45(10):117-119, 1967.

6908 **CONCURRENCE OF PROFUSE HEMORRHAGE AND PERFORATION IN CANCER OF THE STOMACH.** *(Rus.)* Svedentsov, Ie. P. (Kirov Regional Oncol. Dispensary, USSR). *Klin Med (Moskva)* 45(10):108-112, 1967.

6909 **TWO UNUSUAL CASES OF HYPERTROPHIC STENOSES OF THE PYLORUS.** *(Fr.)* Saint-Laurent, G. (Notre-Dame Hosp., Montreal, Canada) T. Toussi and P. Langevin. *Un Med Canada* 96(7):822-827, 1967.

6910 **GASTRIC MUCOSA AND ASPIRIN. [EDITORIAL]** *(Sp.)* Vilar Bonet, J. *Med Clin (Barcelona)* 49(3):195-196, 1967.

6911 **THE SURGICAL SIGNIFICANCE OF GASTRIC DIVERTICULA.** *(E.)* Scott, P. R. (Royal Melbourne Hosp., Australia). *Med J Aust* 1(8):309-310, 1968.

6912 **GASTROCOLIC FISTULA AS A COMPLICATION AFTER OPERATIONS ON THE STOMACH.** *(E.)* Benendo-Kapuścińska, B. (Med. Acad., Warsaw, Poland). *Pol Rev Radiol Nuclear Med* 32(3):319-322, 1968.

6913 **CHANGES IN GASTRIC ACIDITY IN PATIENTS WITH MULTIPLE SCLEROSIS.** *(Cz.)* Lenský, P. (Vraz Sanat., Piska, Czechoslovakia). *Cesk Gastroent* 22(8): 526-530, 1968.

6914 **ULCERATION IN THE JUXTAESOPHAGEAL PORTION OF THE STOMACH.** *(E.)* Craighead, C. C. (Browne McHardy Clin., New Orleans, La.). *J Louisiana Med Soc* 120(1):17-23, 1968.

6915 **ANTIGASTRIC AND ANTITHYROID ANTIBODIES IN THE SERUM OF PATIENTS SUFFERING FROM CHRONIC GASTRIC ULCER.** *(E.)* Pramanick, M. (Inst. Postgrad. Med. Ed., Calcutta, India), S. K. Biswas and K. C. B. Mallik. *J Indian Med Ass* 49(5):211-213, 1967.

6916 **AN UNUSUAL CASE OF DUPLICATION OF THE STOMACH WITH SITUS INVERSUS AND LEVOCARDIA.** *(It.)* Romano, C. ("G. Gaslini" Pediat. Clin., U. Genoa, Italy), A. G. Marchi, F. M. Pistone and M. L. Grossi-Bianchi. *Clin Pediat (Bologna)* 50(12):905-914, 1968.

## STOMACH

6917 **GASTRO-OESOPHAGEAL DECONGESTION AND SPLENECTOMY (HASSAB'S OPERATION) THROUGH A THORACIC APPROACH.** *(E.)* Fattouh, A. (Fac. Med., U. Alexandria, Egypt). *Alexandria Med J* 14(5/6): 256-268, 1968.

6918 **INDUCING STOMACH TUMORS IN MICE (C3Hb/Se AND BALB/c/Cb/Se) WITH DIFFERENT DOSES OF 9,10-DIMETHYL-1,2-BENZANTHRACENE AND 3,4-BENZOPYRENE ADMINISTERED ORALLY.** *(It.)* Caschera, F. (Cancer Res., U. Perugia, Italy). *Lavori Ist Anat Univ Perugia* 27(3):157-165, 1967.

6919 **HYPOTHALAMIC NEUROSECRETION IN STOMACH CANCER. (MORPHOLOGICAL STUDY).** *(Rus.)* Es'kov, M. N. (Kursk Med. Inst., USSR). *Arkh Pat* 30(4):40-43, 1968.

6920 **PERFORATIVE STOMACH ULCERS DURING PHEOCHROMOCYTOMA.** *(Rus.)* Sigal, Ie. S. (Cent. Hosp., Bugulminsk Region, USSR). *Klin Med (Moskva)* 46(3):133-134, 1968.

6921 **SARCOID-LIKE CHANGES DURING STOMACH CANCER.** *(Rus.)* Zukakova, I. B. (Cent. Inst. Postgrad. Med., Moscow, USSR). *Klin Med (Moskva)* 46(2): 143-145, 1968.

6922 **BLEEDING IN THE STOMACH DURING ASPIRIN-INDUCED ULCERS.** *(Rus.)* Chebotareva, V. M. (Cent. Clin. Hosp., Moscow, USSR). *Klin Med (Moskva)* 46(2):127-129, 1968.

6923 **EMPTYING OF THE DUODENAL STUMP AFTER GASTRECTOMY.** *(Fr.)* Bakran, I. (Fac. Med., Zagreb, Yugoslavia), I. Bradic and T. V. Relja. *Lyon Chir* 65(1):77-89, 1969.

6924 **BLOOD IRON, ZINC AND MAGNESIUM LEVELS AFTER PARTIAL GASTRECTOMY AND AFTER OPERATIONS ON THE BILE TRACT.** *(Pol.)* Dryjski, J. (2nd Surg. Clin., Acad. Med., Warsaw, Poland), E. Parzuchowski and L. Gołębiowski. *Pol Tyg Lek* 23(16): 579-581, 1968.

6925 **ANALYSIS OF THE ACID AND ENZYME CORRELATION OF NORMAL STOMACH MUCOSA AND DURING GASTRITIS CHANGES. (MAXIMAL HISTAMINE STIMULATION).** *(It.)* Allegra, G. (Gen. Hosp., Novara, Italy). *Riforma Med* 82(7):173-178, 1968.

6926 **RESULTS OF STOMACH CANCER TREATMENT IN AGRICULTURAL REGIONS.** *(Rus.)* Mamchenko, N. S. *Vop Onkol* 14(4):105-106, 1968.

6927 **A CASE OF UNRESECTABLE ADVANCED GASTRIC CANCER ON WHOM SPLENECTOMY WAS DONE AND LEUCOPENIA WAS NOT OBSERVED BY MASSIVE ADMINISTRATION OF MITOMYCIN C.** *(Jap.)* Ono, K. and M. Shimano. *Jap J Cancer Clin* 14(10):874-878, 1968.

6928 **EOSINOPHILIC GRANULOMA (INFLAMMATORY FIBROID POLYP) OF THE STOMACH: A REPORT OF THREE CASES.** *(Jap.)* Koide, O. *Jap J Cancer Clin* 14(11):968-972, 1968.

6929 **THE COMPARATIVE IMMUNOMORPHOLOGICAL EVALUATION OF THE LYMPHOIDO-PLASMOCYTIC REACTION IN GASTRIC CANCER.** *(Rus.)* Zukakova, I. B. (Cent. Postgrad. Med. Inst., Moscow, USSR). *Vop Onkol* 14(2):17-23, 1968.

6930 **HEMORRHAGING OF THE STOMACH IN THE AGED.** *(Sp.)* Garcia-Arguelles, R. (Oviedo, Spain). *Rev Esp Enferm Apar Dig* 27(4):588-592, 1968.

6931 **PYLORIC STENOSIS IN THE ADULT.** *(E.)* Le Quesne, L. P. (Middlesex Hosp., London, England). *J Roy Coll Surg Edinb* 13(2):59-71, 1968.

6932 **PARIETOGRAPHY IN THE DIAGNOSIS OF STOMACH CANCER.** *(Rus.)* Fanardzhian, V. A. and Ts. A. Daniielian. *Zh Eksp Klin Med* 8(6):9-19, 1968.

6933 **CORROSIVE STRICTURE OF THE STOMACH WITH A CASE REPORT.** *(E.)* Kalyanam, K. A. (Govt. Erskine Hosp., Madurai, India) and R. Chakravarthi. *Indian J Surg* 29(12):687-692, 1967.

6934 **RADIOLOGICAL NOTES. GASTRODUODENAL INTUSSUSCEPTION DUE TO ANGIOFIBROMA OF GASTRIC ANTRUM. [CASE REPORT]** *(E.)* Peck, H. M. (Mt. Sinai Hosp., New York, N. Y.). *J Mount Sinai Hosp NY* 34(5):535-540, 1967.

6935 **ROENTGEN EXAMINATION OF THE AFFERENT JEJUNAL LOOP AND DUODENAL STUMP AFTER PARTIAL GASTRECTOMY.** *(E.)* Kajas, S. (U. Hosp., Turku, Finland). *Ann Chir Gynaec Fenn* 56 (Suppl. 156):1-59, 1967.

6936 **METASTASIS OF THE UMBILICUS FROM STOMACH CANCER. [CASE REPORT]** *(It.)* Brodetti, A. (Loreto Crispi Hosp., Naples, Italy). *Rass Int Clin Ter* 47(12):684-687, 1967.

6937 **A COMPARATIVE STUDY OF TWO HOMOGENEOUS SERIES OF GASTRECTOMIES AND VAGOTOMIES.** *(Sp.)* Pujol Soler, J. (Barcelona, Spain) and S. Bru Piquer. *Cir Ginec Urol* 21(5):344-346, 1967.

6938 **HAEMANGIOPERICYTOMA OF THE STOMACH [CASE REPORT]** *(E.)* Tanghe, W. (St. Rafaël Hosp., Louvain, Belgium), V. Desmet, J. Vermeulen, D. Noyez and G. Tytgat. *T Gastroent* 12(2):159-167, 1969.

6939 **DEEP LOCAL HYPOTHERMIA OF THE STOMACH.** *(Fr.)* Romanos, A. N. (Surg. Clin. U. Athens, Greece), C. Alivisatos, T. Dascalakis and A. Kassioumis. *Rev Med Moyen Orient* 24(3):207-217, 1967.

See also: 6441,6469,6504,6540,6571,6698,6708,6709,6710,6723,
6733,6743,6751,6756,6757,6775,6784,6790,6800,6835,
6837,6857,7036,70697516

## SMALL INTESTINE

6940 **ACUTE DUODENAL DIVERTICULITIS.** *(E.)* Turner, R. J. III. (Lorimer Clin., Fort Worth, Tex.). *Texas Med* 65(3):91-95, 1969.

Hospital experience with 225 duodenal diverticuli observed between 1960 and July 1966 is reviewed. Most of the diagnoses were made radiologically. There were 136 women and 89 men. Most of the patients were in their seventh decade. Most (119) of the diverticuli were located in the second part of the duodenum. Twenty-seven patients (12%) had multiple diverticuli. Only 6 (2.66%) of the 225 patients came to surgery. One of these had acute duodenal diverticulitis.

6941 **EIGHT OBSERVATIONS ON INVERSION OF A SEGMENT OF SMALL INTESTINE. CLINICAL FINDINGS.** *(Fr.)* Hollender, L. F. (Fac. Med., Strasbourg, France). *Chir Gastroent* 8(2):174-194, 1969.

Inversion (in antiperistaltic direction) of a limited segment of the small intestine in 8 cases have been followed for a period of 3 to 6 yr. The most suitable length to invert varies from 12-15 cm. Usually the jejunum about 1 m from Treitz's ligament is preferred. It is preferable, except in a few cases, to perform the inversion in 2 stages, thus avoiding the need to perform inversion simultaneously with extensive resection. While the technique of the operation poses no problems, there are nevertheless some risks involved. Two patients had subocclusive symptoms and a third showed perforative peritonitis, probably due to leakage, 1½ months after the inversion that had seemed successful. Inversion of an intestinal loop always leads to a slowing of intestinal transit which can be verified radiologically, but this occurs independently of the disappearance of functional signs. One of the main indications for this procedure is the short intestine syndrome and persistent diarrhea following right hemicolectomy with simultaneous resection of a fairly extensive portion of the ileum. In idiopathic diarrhea and in the functional syndrome due to definitive ileostomy, inversion of an intestinal loop did not give good results. In post-vagotomy diarrhea and in the functional sequelae of small intestine or colonic resection for inflammatory lesions, results were generally very good. Inversion usually should not be performed unless all dietary and pharmacologic possibilities have been exhausted.

6942 **THE ETIOLOGY OF URIC ACID UROLITHIASIS FOLLOWING ILEOSTOMY.** *(E.)* Wilmore, D. W. (U. Pennsylvania Sch. Med., Philadelphia) and R. E. Gots. *Arch Surg (Chicago)* 99(4):421-423, 1969.

Factors in the etiology of uric acid urolithiasis after ileostomy were studied. Uric acid excretion was determined in 3 patients with established ileostomies and uric acid calculi during 5-day periods of oral intake and total parenteral therapy. Excessive ileostomy loss (1374-4306 ml/24 hr) and diminished urinary output (320-650 ml/24 hr) occurred during the *ad lib* oral feedings. Fixed base loss from the gastrointestinal tract resulted in excretion of a persistently acid urine (pH 5.7) with absence of expected morning and postprandial "alkaline tides." Administration of i.v. fluids promptly reestablished adequate urinary output, increasing creatinine and uric acid clearance and decreasing urine uric acid concentration.

6943 **EXPERIMENTAL STRANGULATED INTESTINAL OBSTRUCTION.** *(E.)* Yale, C. E. (U. Wisconsin, Med. Ctr., Madison). *Surgery* 66(2):338-344, 1969.

Moderately short, closed-loop, venous strangulation of the small intestine was performed on 10 healthy dogs in order to study the pathophysiologic changes. Each 20 cm segment tested was isolated and exteriorized in an artificial ventral hernia. This method permitted accurate serial sampling of the strangulation fluid and visualization of the segment, and adequately sealed the strangulated loop from the peritoneal cavity. A severe toxemia followed quickly by shock and death occurred when the fluid was released i.p. at the end of 24 hr. Several of the physical and chemical properties of this undiluted strangulation fluid were appreciably different from those of fluids studied by most investigators. Its rapid alteration by selective absorption or dilution in the peritoneal cavity was demonstrated. *Clostridium perfrigens, E. coli, Sphaerophorus* sp., and *Bacteroides* sp. were present in the strangulation fluid and were usually found in the terminal blood culture. Streptococci and Staphylococci were also frequently isolated.

6944 **SMALL BOWEL CHANGES IN DERMATITIS HERPETIFORMIS.** *(E.)* Meyerson, L. B. (Brooke Gen. Hosp., Fort Sam Houston, Tex.) and J. J. Stagnone. *Southern Med J* 62(8):971-975, 1969.

In order to study changes in the small intestine, biopsies were obtained from 8 of 10 patients with dermatitis herpetiformis (5 men and 5 women, 32-67 yr old). Complete flattening of the intestinal villi with a dense lymphocytic infiltrate was seen in 4 of 6 patients. One of the other abnormal biopsies showed considerable edema of the villi with a dense lymphocytic infiltrate, and the other showed a mild monocytic and eosinophilic cellular infiltrate with slight blunting of the villi. Serum protein electrophoresis was normal in all 8 patients; however, serum IgM was low in 4 patients (3 of whom had severe intestinal changes) and elevated in the other 4 cases. All but 2 of the 8 patients had an abnormal IgA or IgG level.

6945 **A REVIEW OF THE LONG-TERM RESULTS OF OPERATIONS FOR DUODENAL ATRESIA.** *(E.)* Feggetter, S. (Newcastle Gen. Hosp., England). *Brit J Surg* 56(1):68-72, 1969.

The results obtained in 31 cases of congenital duodenal atresia operated upon during a 22 yr period are reviewed. Nine patients died postoperatively and 1 died 10 weeks later from hepatitis. One other died after a splenectomy 4½ yr later. The 20 survivors, 10 male and 10 female, ranged from 6-28 yr of age at follow-up. Thirteen of these patients had had a gastroenterostomy, 3 of whom then required operations for complications. Seven patients had duodenojejunostomies, only 1 of whom required an additional procedure and that was unrelated to the congenital defect. Ten of the 13 patients who had had a gastroenterostomy and 6 of the 7 who had had a duodenojejunostomy had been perfectly well since their neonatal operation.

6946 **BILIARY ILEUS. 13 CASES.** *(Fr.)* Parent, M. (Notre Dame Hosp., Montreal, Canada) and L. Dontigny. *Un Med Canada* 96(7):852-856, 1967.

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Thirteen cases (92% female) of biliary ileus were treated between 1949 and 1966. Two were not treated surgically because of the severity of their condition. The preoperative diagnosis, made in 70% of the cases by X-ray, showed duodenal fistula in all. Of the 13, 12 had obstruction of the ileum, 1 of the duodenum. The average diameter of the stones was 3 cm. The surgical operations were: 8 enterolithotomies and 1 gastrotomy, with no immediate complications and without reoperation; and 2 complete excisions involving cholecystectomies. Two patients died 2 days after the operation (1 myocardial infarction, 1 cerebro-vascular accident). The survival rate was 82%.

6947 VAGOTOMY AND DERIVATIVE OPERATIONS IN PERFORATED DUODENUMS. *(Sp.)* Montero Gomez, M. (Provincial Hosp., Orense, Spain). *Cir Ginec Urol* 21(5):325-327, 1967.

6948 PERITONITIS CHRONICA ENCAPSULANS WITH HIGH OCCLUSIVE JEJUNAL SYNDROME. *(It.)* Pezzi, A. (Munic. Hosp., Brescia, Italy). *Radiol Med (Torino)* 53(12):1217-1238, 1967.

6949 ILEAL DUPLICATION IN INFANCY. TWO CASE REPORTS. *(E.)* Skinner, A. A. (Auckland Publ. Hosp., New Zealand). *Aust Radiol* 11(3):250-253, 1967.

6950 RADIOLOGICAL NOTES. CAVERNOUS HEMANGIOMA OF ILEUM. [CASE REPORT] *(E.)* Bluestein, S. G. (Mt. Sinai Hosp., New York, N. Y.) and C. Zimmerman. *J Mount Sinai Hosp NY* 34(5):540-542, 1967.

6951 PERFORATION OF MECKEL'S DIVERTICULUM BY FOREIGN BODY. REVIEW OF LITERATURE AND REPORT OF TWO CASES. *(E.)* Agrawal, S. K. (M. L. N. Med. Coll., Allahabad, India). *Indian J Surg* 29(6):325-327, 1967.

6952 VOLVULUS OF THE SMALL INTESTINE DUE TO ASCARIASIS. [CASE REPORT] *(E.)* Manhas, D. R. (V. J. Hosp., Amritsar, India) and A. Singh. *Indian J Surg* 29(6):328-330, 1967.

6953 CECAL VOLVULUS DURING PREGNANCY. *(It.)* Lenzi, G. (Vercelli Sch. Obstet., U. Turin, Italy). *Attualita Ostet Ginec* 13(3):203-210, 1967.

6954 MASSIVE RETROPERITONEAL LIPO-SARCOMA. A CASE REPORT WITH REVIEW OF LITERATURE. *(E.)* Chaplot, G. S. (R. N. T. Med. Coll., Udaipur, India), P. L. Bafna and K. C. Gangwal. *Indian J Surg* 29(12): 679-682, 1967.

6955 NOBLE'S PLICATION FOR RECURRENT INTUSSUSCEPTION IN PEUTZ JEGHER'S SYNDROME. *(E.)* Talwar, G. L. (S. M. S. Coll., Jaipur, India) and S. K. Pande. *Indian J Surg* 29(9):491-494, 1967.

6956 A NEW WAY OF DRAINING A DEHISCENT DUODENAL STUMP. *(Sp.)* Bustos Alarcon, A. (Teniente Coronel Norena House Social Security, Cordoba, Spain). *Cir Ginec Urol* 22(3):393-398, 1968.

6957 SARCOMAS OF THE SMALL INTESTINE. *(Pol.)* Suszko, B. (Gen. Hosp. No. 2, Bydgoszcz, Poland). *Pol Tyg Lek* 23(19):706-707, 1968.

6958 NEURILEMOMA OF THE DUODENUM. *(Rus.)* Belonosov, V. P. (Zhukov Cent. Munic. Hosp., Moscow Region, USSR). *Vop Onkol* 14(4):98-99, 1968.

6959 A TECHNIQUE TO AVOID A DUODENAL FISTULA. *(It.)* Trincas, M. (Gen. Surg. Clin., U. Ferrara, Italy) and L. Remelli. *Int Surg* 49(5):470-472, 1968.

6960 PNEUMATOSIS INTESTINALIS. REPORT OF A CASE ASSOCIATED WITH PYLORIC OBSTRUCTION. *(E.)* Hoffman, R. V. Jr. (VA Hosp., Huntington, W. Va.), T. R. M. Gyorgy and R. L. Bradley. *Amer Surg* 34(4):300-302, 1968.

6961 DIVERTICULOSIS OF THE JEJUNUM. *(It.)* Boffi, L. (S. M. Nuova Main Hosp., Florence, Italy), P. Favi and F. Sbaragli. *Osped Ital Chir* 18(5):437-442, 1968.

6962 HISTOENZYMOLOGICAL STUDY OF THREE CASES OF SMALL INTESTINE ATROPHY. *(Fr.)* Bognel, J. C. (Saint-Lazare Hosp., Paris, France), C. Bognel and J. J. Bernier. *Sem Hop Paris* 43(51):3242-3249, 1967.

6963 AN UNUSUAL CAUSE OF THE DUODENAL SYNDROME. [CASE REPORT] *(E.)* Chakravarty, A. (Ramkrishna Mission Sevapratishthan, Calcutta, India) and R. C. Chakravorty. *Calcutta Med J* 66(4):101-103, 1969.

6964 BLEEDING LEIOMYOMA OF THE DUODENUM DEMONSTRATED BY SELECTIVE ANGIOGRAPHY. REPORT OF A CASE. *(E.)* Rivera, R. A. (Walter Reed Gen. Hosp., Washington, D. C.), J. Gutierrez and W. P. Mahoney. *Med Ann DC* 38(8):428-476, 1969.

6965 OPERATIVE DECOMPRESSION IN INTESTINAL OBSTRUCTION. *(E.)* Jones, P. F. (Aberdeen Gen. Hosp., Scotland) and N. A. Matheson. *Lancet* 1(7553): 1197-1198, 1968.

6966 STEATORRHOEA WITH STRIKING INCREASE OF PLASMA-ALKALINE-PHOSPHATASE OF INTESTINAL ORIGIN. *(E.)* Dent, C. E. (U. Coll. Hosp., London, England), T. St. M. Norris, R. Smith, R. A. L. Sutton and J. M. Temperley. *Lancet* 1(7556):1333-1336, 1968.

6967 TUMORS OF THE DUODENUM AND JEJUNUM. CASE REPORTS. *(E.)* Morioka, W. K. (St. Louis U. Hosp., Mo.) and G. B. Starkloff. *Missouri Med* 65(3):211-214, 1968.

6968 ENTERIC INTUSSUSCEPTION. *(E.)* Leigh, B. (Sutherland Dist. Hosp., Sydney, Australia). *Med J Aust* 1(12):497, 1968.

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6969 INTESTINAL PERFORATION BY FISH BONES. *(Rus.)* Domrachev, A. S. (A. V. Lunacharskii Med. Inst., Astrakhan, USSR) and D. D. Dobrov. *Klin Med (Moskva)* 45(10):113-116, 1967.

6970 SMALL INTESTINAL LYMPHANGIOMA. [CASE REPORT] *(E.)* Walker-Smith, J. A. (Royal Alexandra Hosp. Child., Sydney, Australia), R. D. K. Reye, G. B. Soutter and K. G. Kenrick. *Arch Dis Child* 44(236):527-532, 1969.

6971 LONG-TERM PROGNOSIS AFTER MAJOR RESECTION OF SMALL BOWEL IN EARLY INFANCY. [CASE REPORTS] *(E.)* Young, W. F. (Queen Elizabeth Hosp. Child., London, England), V. A. J. Swain and E. M. Pringle. *Arch Dis Child* 44(236):465-470, 1969.

6972 CONGENITAL DUODENAL WEB IN AN ADULT. [CASE REPORT] *(E.)* Nance, F. C. (Louisiana State U. Sch. Med., New Orleans) and R. G. Font. *Amer J Dig Dis* 14(9):678-682, 1969.

6973 AMEBIC PERFORATION OF THE ILEUM IN INFANCY. [CASE REPORT] *(E.)* Sogani, K. C. (Sawai Man Singh Med. Coll. Hosp., Jaipur, India), B. P. Kalani and M. L. Sharma. *J Pediat Surg* 4(4):473-477, 1969.

6974 RARE COMBINATION OF CONGENITAL ANOMALIES IN A 5 YEAR OLD GIRL. LEVOCARDIA WITH SITUS INVERSUS ABDOMINALIS AND DUODENAL OBSTRUCTION DUE TO MALROTATION AND AN INTRALUMINAL DIVERTICULUM. [CASE REPORT] *(Dut.)* de Reus, H. D. (Juliana Hosp., Apeldoorn, Netherlands), J. Heckman and I. van de Hal. *T Gastroent* 12(1):58-92, 1969.

6975 METOCLOPRAMIDE AS AN ADJUNCT TO SMALL BOWEL INTUBATION. *(E.)* Mitchell, A. B. S. (Charing Cross Hosp., London, England) and R. A. Parkins. *Gut* 10(8):690, 1969.

6976 LEIOMYOMA OF ILEUM: A CASE REPORT. *(E.)* Mehta, A. R. (Tata Mem. Hosp., Bombay, India). *Indian J Cancer* 6(1):58-60, 1969.

6977 INFARCTION OF THE SMALL INTESTINE ASSOCIATED WITH ORAL CONTRACEPTIVES. [CASE REPORT] *(E.)* Lowry, J. B. (Mid-Ulster Hosp., Ireland), K. G. Orr and W. G. Wade. *J Irish Med Ass* 62(385):260-262, 1969.

6978 CALCULI IN A MECKEL'S DIVERTICULUM. [CASE REPORT] *(E.)* Goard, K. E. (Canberra, Australia) and M. H. Kerby. *Med J Aust* 2(2):98-99, 1969.

6979 SODIUM CONSERVATION BY THE SMALL INTESTINE IN A PATIENT WITH CHRONIC ILEOSTOMY DIARRHEA. *(E.)* Gallagher, N. D. (Royal Prince Alfred Hosp., Sydney, Australia), D. D. Harrison, J. V. Wyatt and A. P. Skyring. *Gut* 10(3):202-205, 1969.

6980 ISCHEMIC STENOSIS OF THE SMALL INTESTINE. *(E.)* Räf, L. E. (Serafim Hosp., Stockholm, Sweden). *Acta Chir Scand* 135(3):253-259, 1969.

6981 COMMUNICATING ENTEROGENOUS CYST OF DUODENUM RECEIVING THE TERMINATION OF THE COMMON BILE DUCT DEMONSTRATED BY INTRAVENOUS CHOLANGIOGRAPHY. [CASE REPORT] *(E.)* Perrin, R. W. (Methodist Hosp., Dallas, Tex.). *Radiology* 93(3):675-676, 1969.

6982 ARTERIOGRAPHIC DIAGNOSIS OF INTERNAL (LEFT PARADUODENAL) HERNIA. [CASE REPORT] *(E.)* Meyers, M. A. (Bronx-Lebanon Hosp. Ctr., N. Y.). *Radiology* 92(5):1035-1037, 1969.

6983 VILLOUS ADENOMA OF THE SMALL BOWEL: AN UNUSUAL LESION. [CASE REPORT] *(E.)* Keeley, A. F. (Harvard Med. Sch., Boston, Mass.) and L. S. Gottlieb. *Gastroenterology* 57(2):185-190, 1969.

6984 CARCINOMA OF THE ILEOCECAL VALVE. CASE REPORT AND REVIEW OF LITERATURE. *(E.)* Lee, B. Y. (VA Hosp., Castle Point, N. Y.), R. Z. Schulz and J. L. Madden. *Amer J Gastroent* 51(5):434-443, 1969.

6985 RADIOLOGICAL FEATURES OF THE SMALL INTESTINE IN THE INTESTINAL LYMPHANGIECTATIC SYNDROME. *(It.)* Strada, C. (Clin. Gen. Med. Ther., U. Bari, Italy), G. Pastore and R. Marano. *Minerva Radiol* 14(5):179-185, 1969.

6986 CONJUNCTIVE TUMORS OF THE SMALL INTESTINE. LEIOMYOMA AND LEIOMYOSARCOMA. [CASE REPORT] *(Sp.)* Atencio, H. S. (Cordoba Hosp., Argentina), E. A. Ruggieri and H. Cámara. *Rev Argent Cir* 13(1/3):46-48, 1967.

6987 ILEOSTOMY IN CHRONIC RENAL FAILURE. *(E.)* Lindqvist, B. (U. Umeå, Sweden) and B. O. Odén. *Acta Med Scand* 182(2):207-212, 1967.

6988 SURGICAL TREATMENT OF THE DIVERTICULUM OF THE DUODENAL CONCAVITY. *(Sp.)* Ordóñez Acuña, A. *Cir Cir* 35(5):477-510, 1967.

6989 UNUSUAL PROBLEMS IN SURGERY. SPLENOSIS AND INTESTINAL OBSTRUCTION. [CASE REPORT] *(E.)* Prasad, C. (Mt. Sinai Hosp., New York, N. Y.) and A. R. Beck. *J Mount Sinai Hosp NY* 35(2):534-539, 1968.

6990 INTESTINAL POLYPS. CLASSIFICATION AND CONCEPTS. *(Por.)* Cravo, M. A. (Med. Sch., Federal U. Pernambuco, Brazil). *Hospital (Rio)* 72(5):1595-1600, 1967.

6991 AN INTESTINAL DECOMPRESSOR. *(E.)* Roberts, G. R. (Connaught Hosp., London, England). *J Roy Coll Surg Edinb* 13(3):165-166, 1968.

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6992 VENOUS INSUFFICIENCY OF THE SMALL INTESTINE SECONDARY TO SARCOIDOSIS OF MESENTERIC LYMPH NODES. [CASE REPORT] *(E.)* Schwarzschild, W. (VA Hosp., Philadelphia, Pa.) and R. M. Myerson. *Amer J Gastroent* 50(1):69-72, 1968.

6993 MECKEL'S DIVERTICULUM. [CASE REPORT] *(E.)* Kolbe, J. (Milit. Med. Acad., Warsaw, Poland) and M. Wolski. *Pol Rev Radiol Nuclear Med* 32(3): 332-336, 1968.

6994 CICATRIZING LESIONS OF THE ILEOCAECAL REGION. *(E.)* Chandra, A. (Inst. Postgrad. Med. Ed. Res., Calcutta, India) and A. K. Basu. *Indian J Surg* 29(12):645-659, 1967.

6995 THE RADIOLOGIC PATTERN OF MULTIPLE DIVERTICULA OF THE DUODENUM AND JEJUNUM. [CASE REPORT] *(Pol.)* Cwiklińska, T. (3rd Clin. Intern. Dis., Lublin, Poland) and A. Żochowski. *Pol Przegl Radiol* 31(4):575-578, 1967.

See also: 6427,6716,6736,6900,6903,6935
7134,7142,7506,7509,7525

## Peptic Ulcers

### 6996 RELATIONSHIP BETWEEN BLOOD GROUPS OF ABO SYSTEM AND THE SEVERITY OF DUODENAL ULCERS.

*(E.)* Vesely, K. T. (Inst. Human Nutrit., Prague, Czechoslovakia) and Z. Kubickova. *Rev Czech Med* 15(1):33-40, 1969.

The incidence of ABO blood groups was investigated in 1411 patients with duodenal ulcers and compared with a control group of 1142. The frequency of group 0 was significantly higher and the frequency of group A was lower in the patients than in the control group. In 597 patients subjected to resection, the differences in the frequency of the blood groups were even more marked, while in nonoperated patients the difference was not statistically significant. The ratio of blood groups was also investigated in 151 patients with bleeding ulcers and 611 patients without signs of bleeding. The percentage of patients in group 0 was also higher than in the group as a whole; in the smaller group of patients, however, the higher frequency of group 0 was statistically significant in bleeding and nonbleeding ulcers. The lower frequency of group A was significant only in the group with bleeding ulcers. In 610 patients examined for gastric acidity, patients in group 0 had a significantly higher acidity than other blood groups. The genes for blood group 0 must influence the development of duodenal ulcers, the severity of the disease and incidence of complications. There seems to be no direct relationship between blood groups and peptic ulcer nor is there a relationship with hemorrhage, perforation or the need for surgery since these signs are not specific.

### 6997 RESULTS OF TREATMENT OF ACUTE GASTRODUODENAL HEMORRHAGES OF ULCEROUS ETIOLOGY.

*(Rus.)* Nikitenko, V. N. (Kiev Med. Inst., USSR). *Klin Khir (Kiev)* (9):31-35, 1968.

Between 1960 and 1966 a total of 167 patients were treated for severe gastroduodenal bleeding. All patients were admitted to the hospital since experience has shown that there are 26 conditions which can manifest themselves as hemorrhage and differential diagnosis is necessary. Moreover, 13.7-40.7% of the hemorrhages may be from causes other than gastroduodenal ulcers. Complete blood studies were made and hemoglobin values were found useful in evaluating treatment. Emergency operations were carried out in 7 with 3 deaths; surgical procedures after the arrest of bleeding in 25 with no deaths; conservative treatment in 78 with 4 deaths and other gastroduodenal diseases were treated conservatively with 4 deaths. Of the 4 patients who died after conservative treatment, 1 was 65 and 2 were over 75 yr of age and the fourth was aged 42 with a stage 3 cardiac.

### 6998 REVAGOTOMY FOR RECURRENT ULCER AFTER VAGOTOMY AND DRAINAGE FOR DUODENAL ULCER.

*(E.)* Fawcett, A. N. (Royal Infirm., Sheffield, England), D. Johnston and H. L. Duthie. *Brit J Surg* 56(2):111-116, 1969.

The results of 77 revagotomies in the treatment of 74 patients (64 men, 10 women, mean age of 44.5 yr) with recurrent ulceration were evaluated. The patients had originally had duodenal ulceration treated by vagotomy and a drainage procedure and had developed a recurrent duodenal or stomal ulcer associated with evidence of incomplete vagotomy in insulin testing. The insulin provocation test was still positive in 30% of 62 patients who had abdominal revagotomy and in 58% of 15 cases after transthoracic revagotomy. However, in most cases these positive responses were late (i.e., in the second hr after insulin) after operation, whereas before revagotomy most had been early (i.e., in the first hr after insulin). The clinical results were also disappointing: 26% of 58 patients followed for more than 6 months had a poor result, in most cases because of persistent pain. Those with negative insulin tests were much better than those in whom the insulin test remained positive after the second operation. Surgery should be selective, depending on the findings at the esophageal hiatus, with revagotomy and antrectomy and gastroduodenal anastomosis being used for most patients.

### 6999 ROLE OF INTESTINAL CHYME IN THE PATHOGENESIS OF GASTRIC ULCERATION FOLLOWING EXPERIMENTAL HEMORRHAGIC SHOCK.

*(E.)* Guilbert, J. (Montreal Gen. Hosp., Canada), G. Bounous and F. N. Gurd. *J Trauma* 9(8):723-743, 1969.

Hemorrhagic shock producing arterial hypotension lasting 4½ hr provided a severe stress for 45 young mongrel dogs of both sexes (average weight 14.4 kg). Two experimental groups were studied in which the model was modified: in the first, a known trypsin inhibitor was added into the intestinal lumen (300 mg into the ileum, 50 mg into the stomach); in the second the pylorus was clamped during the period of hypotension. Ten of the 20 animals in the control group survived as compared with 12 of 16 in the first experimental group and 6 of 9 in the second experimental group. Macroscopic ulceration was present in 55% of control, in 20% of those with a trypsin inhibitor and in none of those with the pylorus clamped. All of the control group had diminished gastric surface mucus and destruction of superficial cellular elements. There was superficial destruction in 43% of the trypsin inhibitor group and in only 1 of 9 in the pylorus-clamped group. Duodenal reflux occurred during shock as demonstrated by the increase in pH which took place (1.95 to 5.59 in the first experimental group, and 2.04 to 5.43 in the second experimental group). During shock, duodenal chyme refluxing into the stomach brings in hydrolytic enzymes derived from necrosing intestinal mucosa. The inhibition of trypsin accounts for the significant reduction in the incidence and severity of the gastric lesions when the inhibitor is added.

### 7000 PEPTIC ULCER IN CHILDREN AND ADOLESCENTS. A REVIEW OF 28 CASES.

*(E.)* Barda, M. (St. Joseph's Hosp., Toronto, Canada), G. A. McIntyre and M. Deitel. *Arch Surg (Chicago)* 99(1):15-18, 1969.

Twenty-eight children (3 female infants, 1 female and 4 male children, and 2 female and 18 male adolescents) with peptic ulcer were studied. The incidence increased with age. Also, with increasing age, the proportion of males increased and the adult picture was simulated. In the early age-groups, stress of disease played an important role, perforation was more common and mortality higher. Psychogenic factors were important in the older child, who should have psychiatric assessment. Conservative management is indicated unless there are complications Although 45% had recurrent symptoms, only 2 needed surgery. Children should be investigated adequately so that, if a peptic ulcer is present, treatment can be instituted before the disease progresses.

7001 EFFECT OF LOW DOSAGE OF CARBENOXOLONE SODIUM ON GASTRIC ULCER HEALING AND ACID SECRETION. *(E.)* Cocking, J. B. (Royal Infirm., Sheffield, England) and J. N. MacCaig. *Gut* 10(3):219-225, 1969.

A double-blind trial involving treatment with either carbenoxolone (100 mg 3 times/day for 1 week then 50 mg 3 times/day for 4 weeks) or an indistinguishable placebo was carried out in 36 ambulatory gastric ulcer outpatients. Patients were asked to lead a normal life and to eat a normal diet if possible. Unrestricted antacids were allowed for symptomatic relief. At each weekly visit, the frequency and severity of symptoms were recorded, and weight, blood pressure and results of examination noted. Blood studies (including SGOT and SGPT) were made. At the end of the 5-week period a repeat barium meal study, endoscopy, and augmented histamine test were carried out. The 2 groups (active and placebo) proved to be similar in age, sex, ulcer history, ulcer size, blood group and secretor status. Although the mean initial ulcer size was slightly greater in the controls, the difference was not statistically significant. Nine ulcers healed in the treated group and 2 in the control group. When the degree of healing was graded on a scale (1 = healed, 2 = healing, 3 = no change, 4 = larger) the average grading for the control was 2.4 and for the treated 1.6. Weight gain was a side effect but other side effects (heartburn, edema, hypertension, hypokalemia) were minimal and not significantly greater in the treated group. Endoscopy showed the imperfections of radiological interpretation alone, and the necessity for combined assessment of complete healing of gastric ulcers. There was a tendency for acid secretion to fall over the trial period both in control and treated groups. Two patients with benign ulcers had histamine-fast achlorhydria. The action of carbenoxolone may be aldosterone-like.

7002 VAGOTOMY AND PYLOROPLASTY AS A PRIMARY PROCEDURE FOR ACUTE PERFORATION OF PEPTIC ULCER. *(E.)* Belliappa, K. P. (York 'A' Group Hosp., England). *Brit J Clin Pract* 23(7):272-274, 1969.

Of 54 cases of perforated peptic ulcers admitted, 27 were selected at random for treatment by total vagotomy and pyloroplasty and the other 27 were treated by simple suturing for comparison. As a part of the postoperative management, all patients received Crystamycin for 5-7 days. The few postoperative complications encountered were: paralytic ileus which occurred in 1 patient 3 days after operation and which subsided 36 hr later; basal atelectasis in 2 patients from which both recovered; burst abdomen in 2 patients who recovered after resuturing; coronary thrombosis in 2 patients from which 1 recovered; and peritonitis in 1 patient who died. None of the patients developed postvagotomy diarrhea. It is felt that the advantage of vagotomy and pyloroplasty is the one stage operation for ulcer perforation.

7003 SURGICAL TREATMENT OF PEPTIC ULCER. *(E.)* Morgan, E. S. (Pendleton, Oregon). *Amer Surg* 35(11):805-808, 1969.

Various procedures used in the surgical treatment of peptic ulcers during a 30 yr period were compared. Between 1939 and 1948 a subtotal (75%) gastric resection was used with a Billroth II anastomosis in 131 patients. Results were satisfactory in 85%. The operative mortality was 2.2%. A trunkal vagotomy with a posterior gastroenterostomy was used in 10 patients with 8 of them needing reoperations over a 20 yr period. Between 1949 and 1958 vagotomy, hemigastrectomy and Billroth I anastomosis were used in 172 patients. Good results were obtained in 88%. The operative mortality was 1.7%. Between 1959 and 1968 vagotomy and pyloroplasty (Heinecke-Mikulicz or Finney) was predominantly used. Results were favorable in 90%. The mortality rate was 1%.

7004 SECOND GASTRIC RESECTION FOR RECURRENT PEPTIC ULCER. *(E.)* Robnett, A. H. (Spokane, Washington), M. W. Durham, H. P. Harper and R. E. Ahlquist. *Amer Surg* 35(11):801-804, 1969.

The case reports of 37 patients who required a second surgical procedure for recurrent peptic ulcer were reviewed. Sixteen were reoperated because of massive bleeding (none immediately postoperative). Of 21 patients reoperated because of symptoms, 3 had the afferent loop syndrome, 2 had persistent outlet obstruction and 16 had recurrent or persistent ulcer pain. The "redo" operations on these patients consisted of reresection (13), reresection with vagotomy (7), and vagotomy with a posterior gastrojejunostomy (1). There was no operative mortality and 13 of 18 surviving members of the group were asymptomatic. Three others were controlled medically. Eight of the 16 patients with massive bleeding were first operated on for bleeding. The "redo" operation for these patients consisted of gastric resection (Billroth I, 3, Billroth II, 4), gastric resection (Billroth I) with vagotomy (4), Billroth II with vagotomy (2), vagotomy alone (1), gastrostomy with biopsy (1) and excision of an islet cell tumor (1). Three patients died in the immediate postoperative period. Of 11 patients alive, 8 were well, 2 had recurrent bleeding and 1 had ulcer symptoms at the time of follow-up.

7005 ACUTE COMPLICATIONS OF DUODENAL ULCER. *(E.)* Thorlakson, K. T. (The Winnipeg Clin., Canada). *Winnipeg Clin Quart* 22(3):97-102, 1969.

The clinical course of 9 patients hospitalized with perforated duodenal ulcer during a 5 yr period was reviewed. Seven were male and 2 were female and the average age was 57 yr. Free air was demonstrated under the diaphragm by chest X-ray in 7. Treatment consisted of surgical closure within 4 to 6 hr after admission. About 50% required additional surgery within 10 yr. The case histories of the 20 patients with bleeding duodenal ulcer admitted to the same hospital during a 5 yr period were also reviewed. Most patients were middle aged males with a previous history and radiological evidence of ulcer. Vital signs were usually stable on admission, but in half the patients the Hb was 8 g or less and 5 or more U of blood were required. Emergency barium X-ray demonstrated the site of the ulcer in 13. Blood volume was restored within 1 to 6 days and an operation, usually vagotomy and drainage procedure, was performed within a week of admission. In no patient was surgery carried out less than 24 hr after admission. The postoperative complication rate was low. None of these cases have had a recurrence of hemorrhage nor have they, at the time of the review, required operation for recurrent ulcer. There was no no operative mortality in either the perforated or bleeding ulcer groups.

**7006 VAGOTOMY AND DRAINAGE PROCEDURE FOR DUODENAL ULCER: THE RESULTS OF TEN YEARS EXPERIENCE.** *(E.)* Eisenberg, M. M. (U. Florida Coll. Med., Gainesville), E. R. Woodward, T. J. Carson and L. R. Dragstedt. *Ann Surg* 170(3):317-328, 1969.

Data relating to 455 patients (415 male, 15 female, average age 49 yr) with proven duodenal ulcers and treated by vagotomy and drainage procedures during a 10 yr period have been summarized: 70% of the patients were observed for at least 2 yr, and more than half for 3-10 yr. The mortality rate for elective surgery was 4 of 401 patients or less than 1.0%; for emergency surgery 1 out of 54 patients, a mortality rate of 1.85%. The total recurrence rate (both proved and suspected lesions) was 3.6% for the period. Morbidity was low with only rare development of serious dumping (only 1 required reoperation) or diarrhea (none were incapacitated). Almost 80% of the patients maintained or increased their weight. Vagotomy appears to be an effective, safe, and extremely well-tolerated operation, useful in the management of patients with duodenal ulcer.

**7007 COMPLICATIONS ASSOCIATED WITH GASTRIC AND DUODENAL SURGERY.** *(E.)* Rees, V. L. (Latter-day Saints Hosp., Salt Lake City, Utah), C. Edwards and F. N. Burt. *J Abdom Surg* 11(8):172-174, 1969.

The complications in 40 of 300 recent cases of gastric surgery (Billroth II with resection only, 111; Billroth II with vagotomy, 53; Billroth I with resection only, 14; Billroth I with vagotomy, 21; vagotomy and pyloroplasty, 32; diaphragmatic hernia and vagotomy and pyloroplasty, 25; resection of a marginal ulcer, 9; total gastrectomy, 2; miscellaneous, 33) are reported. Excluded as complications were recurrent ulcers, dumping, recurrent bleeding, malnutrition, wound infection, and pulmonary infarcts. Complications were major postoperative bleeding (5, none reoperated), major operative bleeding (all 5 required splenectomy), duodenal stump leakage (6, 1 of whom died), delayed emptying (6-28 days, 12, 2 of whom were reoperated), subphrenic abscesses (5), eviscerations (5) and esophageal tears (2). Complications were neither frequent nor serious. The death rate for the 300 cases was 0.33% (1 death). This was in a 73-yr-old man who developed a duodenal stump leak and pulmonary complications.

**7008 ANASTOMOTIC ULCERATION.** *(E.)* Pheils, M. T. (Repatriation Gen. Hosp., Concord, Australia) and D. J. Gillett. *Aust New Zeal J Surg* 38(4): 305-308, 1969.

Seventy-eight operations on 68 patients with suspected anastomotic ulceration have been assessed. The incidence of such ulceration was 7% following peptic ulcer surgery. At reoperation there were 61 proven ulcers at the anastomotic site (original ulcer: duodenal 52, gastric 9) and 17 without an ulcer. There were 14 false negative and 6 false positive radiologic (barium meal and gastroscopy) studies. Pain was present in 64 patients and bleeding in 19. Operations included Billroth I (2), Polya gastrectomy (42), vagotomy (24), vagotomy and revision of anastomosis (2) and revision of Polya gastrectomy (8). Only 50% of the patients had a completely satisfactory result.

**7009 AN ANALYSIS OF 864 CASES DUODENAL ULCER TREATED SURGICALLY BY THE DEPARTMENT OF GENERAL SURGERY OF THE WINNIPEG CLINIC FROM 1946-1968.** *(E.)* Trueman, K. R. (Winnipeg Clin., Canada). *Winnipeg Clin Quart* 22(3):83-96, 1969.

Of a total of 864 cases of duodenal ulcers operated on during 1946-1966, up-to-date information was obtained concerning 724 (82%). The postoperative mortality rate in the 864 cases amounted to 13 (1.5%). Ulcer recurrence including suspected recurrence occurred in 32 (4.5%). The proven recurrence total was 23 (3.2%). Of 23 patients with vagotomy alone, 4 required additional surgery for retention and 7 had recurrent ulcerations. Good ulcer control was obtained with vagotomy and pyloroplasty (179 patients), vagotomy and gastroenterostomy (236), vagotomy and resection (30) and partial gastrectomy (388 cases). There was no mortality or recurrence with vagotomy and low gastric resection. Diarrhea (10%) and weight loss (7%) with this procedure were less than that of partial gastrectomy (16% and 10.5%). Post-prandial distress was least with vagotomy and pyloroplasty (18%).

**7010 THE "CHANGING EPIDEMIOLOGY" OF MORTALITY IN DUODENAL ULCER HEMORRHAGE.** *(E.)* Patterson, H. C. (U. North Carolina Sch. Med., Chapel Hill). *Amer Surg* 35(11):828-832, 1969.

Fifteen deaths occurred after definitive duodenal ulcer surgery in 452 cases during a period of 15 yr, a mortality of 3.3%. When the indication for surgery was other than hemorrhage, the mortality rate was 1 in 214 cases (0.9% mortality). When bleeding was the indication, the mortality rate was 5.4%. Age minimally affected mortality (5.9% in those over 60, 5.3% under 60). The mortality rate was less than 1%, even with bleeding, if the procedure was elective. Thirteen patients were thought to have stress ulcers. Eleven of the 15 deaths had evidence of stress ulceration as the cause of bleeding. Four of the 11 had received some form of steroid therapy. Four others were uremic, 2 were post-trauma, and 1 patient was postoperative. Over 1/3 (38%) of the stress ulcers were located in the second 1/3 of the duodenum, 3 of these 5 rebled. No surgical technique was especially effective in treating stress ulcers.

**7011 BILLROTH I GASTRIC RESECTION IN THE TREATMENT OF GASTRIC AND DUODENAL ULCER. (STATISTICS ON 100 CASES).** *(It.)* Basso, R. (Civil Hosp. Catanzaro, Italy) and R. Spinoso. *Chir Gastroent* 3(1):27-42, 1969.

Billroth I gastric resection is superior to Billroth II gastric resection (gastro-jejunal end-to-side anastomosis) in the treatment of gastric and duodenal ulcers and of digestive physiopathology on the basis of clinical, radiological and statistical data and Billroth I is largely applicable to duodenal ulcer. The technique now makes it possible to avoid stenosis of the opening (single layer of anterior suture with interrupted extramucosal everting stitches, posterior spur inferior to 3 mm). To support the superiority of the Billroth I over Billroth II procedure, the results obtained in 100 cases of gastroduodenal ulcer operated on by the Billroth I technique have been compared with those obtained in 100 cases operated on by Billroth II procedure. To further confirm this, negative results in 420 cases of ulcers treated by Billroth II reconstruction are reviewed. To correct such negative results, reconversion of the Billroth II anastomosis to a Billroth I is proposed and carried out in 4 cases.

7012 CLINICAL AND RADIOGRAPHIC FEATURES OF GIANT DUODENAL ULCER. *(E.)* Rosenquist, C. J. (Stanford U. Sch. Med., Palo Alto, Calif.). *Clin Radiol* 20(3):324-328, 1969.

The clinical and radiologic manifestations of giant (diameter > 2.5 cm) in 9 patients (8 male, 1 female, mean age 54 yr) are described. The radiologic diagnosis was missed twice by mistaking the ulcer for a deformed duodenal bulb. A new sign, viz., retention of contrast medium in the large ulcer crater for several hr after the start of the examination, may be useful. A late film should therefore be taken in doubtful cases. Clinically, these giant ulcers cause an unusually high incidence of serious complications. Two patients were admitted in shock from blood loss. Surgical treatment (6 of 8 patients who lived required surgery) is more often needed for giant than for smaller ulcers.

7013 MASTOCYTOMA AND GASTRODUODENAL ULCERATION. GASTRIC AND DUODENAL ULCERS IN DOGS WITH MASTOCYTOMA. *(E.)* Howard, E. B. (Dept. Anim. Dis., U. Connecticut, Storrs), T. R. Sana, S. W. Nielsen and A. J. Kenyon. *Path Vet (Basel)* 6(2):146-158, 1969.

Twenty of 24 dogs with mastocytoma (10 primary, 14 recurrent) had ulcers of the gastroduodenal mucosa. The ulcers were more frequent in the stomach, (stomach only 5, stomach and pylorus 4, stomach and duodenum 2) less frequent in the duodenum (duodenum only 5, duodenum and pylorus 2) or pylorus (pylorus only 2). Perforating ulcers caused death in 3. Vascular lesions were frequent, and vascular alterations may have contributed to the gastroduodenal ulceration associated with mast-cell neoplasma.

7014 PEPTIC ULCER IN AIRLINE STEWARDS. *(E.)* Green, R. L. (London (Heathrow) Airport, England). *Aerospace Med* 40(8):890-893, 1969.

The morbidity from peptic ulcer among airline stewards of BOAC (long haul) and BEA (short haul) was investigated for the years 1959-1967. There were 28 duodenal and 3 gastric ulcers. Of these, 3 (all duodenal) occurred in BEA. The overall incidence was 2.6/1000/yr. The average age for BOAC stewards was 33.8 yr, for BEA, 30.2. The incidence of duodenal ulcer among stewards showed no great difference from that in a non-aircrew military population in peace time, subject to similar strict pre-employment medical examination. When corrected for age, the morbidity was very similar to that found among civilian airline pilots in a short haul airline, and there was no evidence of any difference in incidence between stewards flying on long and short routes. The age variation in morbidity generally followed the expected and established pattern. The incidence of complications was predictable, except that perforation occurred less commonly than might have been expected if stress was a factor. The morbidity did not show any features which could be attributed to occupation or working conditions. Despite disruption of his eating and resting habits at times, there appeared to be no grounds for regarding the airline steward as unduly susceptible to peptic ulcer. Of those afflicted with peptic ulcer in the 9-yr period, over 80% satisfactorily resumed full flying fitness after treatment.

7015 INCREASED REFLUX OF BILE INTO THE STOMACH IN PATIENTS WITH GASTRIC ULCER. *(E.)* Rhodes, J. (Mayo Clin., Rochester, Minn.), D. E. Barnardo, S. F. Phillips, R. A. Rovelstad and A. F. Hofmann. *Gastroenterology* 57(3):241-252, 1969.

The concentration of bile acids in the stomach was measured, after fasting or after a test meal, in 10 patients with gastric ulceration of the proximal lesser curvature and in 10 matched controls. The method for measuring total bile acid concentration in serial samples of gastric content involved labeling the bile acid pool, determination of total radioactivity in serial samples, and calculation of bile acid concentration from selected determinations of specific activity. After eating, ulcer patients had significantly higher concentrations of bile acids in the stomach than did normal subjects. This difference was due to increased reflux of bile. Acidification of the food favored precipitation of bile acids. At the onset of reflux and at its peak, a large proportion was still in solution. The proportion of labeled bile acid in solution could be significantly reduced by the addition of cholestyramine to the test meal. Reflux of bile into the stomach may be one of the causes of gastric ulcer, or, if the ulcer is present already, may delay healing.

7016 PERFORATED GASTROJEJUNAL ULCER IN THE FREE PERITONEUM. *(Sp.)* Moreno Amezcua, J. (Sanit. City Social Security, Barcelona, Spain) and J. Curto Cardus. *Cir Ginec Urol* 21(5):328-329, 1967.

7017 SELECTIVE BILATERAL VAGOTOMY AND PYLOROPLASTY IN THE TREATMENT OF THE PEPTIC ULCER. PROVISIONAL CLINICAL VALUES. *(Sp.)* de Miguel, J. (Valladolid, Spain). *Cir Ginec Urol* 21(5):317-321, 1967.

7018 ULCER AT THE MOUTH OF AN ANASTOMOSIS. *(Sp.)* Palma, F. (Provincial Hosp. Jaén, Spain). *Cir Ginec Urol* 21(5):330-339, 1967.

7019 LA TERAPIA CHIRURGICA DELL' ULCERA GASTRICA E DELL' ULCERA DUODENALE. MODERNI ORIENTAMENTI E LORO BASI FISIO-PATHOLOGICHE (SURGICAL TREATMENT OF GASTRIC ULCER AND DUODENAL ULCER. MODERN ORIENTATIONS AND THEIR PHYSIOPATHOLOGIC BASES). *(It.)* Cirenei, A. and V. Speranza. Padova, Piccin, 1967.

7020 GIANT BENIGN GASTRIC ULCERS. REPORT OF 41 CASES. *(E.)* Elfving, G. (U. Cent. Hosp., Helsinki, Finland), K. Asp and G. Fock. *Ann Chir Gynaec Fenn* 57(3):312-314, 1968.

7021 ORAL INVOLVEMENT IN PEPTIC ULCER. *(E.)* Wolowitz, H. M. (U. Michigan, Ann Arbor). *J Consult Psychol* 31(4):418-419, 1967.

7022 GASTRIC ACID SECRETORY STUDIES IN PATIENTS WITH CHRONIC DUODENAL ULCER–ITS APPLICATION IN DIAGNOSIS AND SURGICAL TREATMENT. *(E.)* Ambasta, S. S. (Coll. Med. Sci., Banaras Hindu U., India) and M. P. Vaidya. *Indian J Surg* 29(8):413-423, 1967.

7023 THE BASES FOR EXPERIMENTAL WORK IN PATHOGENESIS OF ULCERS. *(Sp.)* Perez Mota, A. (Hermanos Aznar Clin., Madrid, Spain). *Rev Esp Enferm Apar Dig* 27(4):563-577, 1968.

7024 TREATMENT OF PEPTIC ULCERS WITH A. D. C. *(Rum.)* Dorca, N., I. P. Luca and T. Henegaru. *Clujul Med* 41(4):443-450, 1968.

7025 COMBINED STOMACH AND DUODENAL ULCERS. (71 CASES). *(Fr.)* Lagache, G. (Munic. Hosp., Lille, France), B. Combemale, M. Vankemmel and C. Proye. *Lille Med* 12(8) :875-879, 1967.

7026 AN UNUSUAL CASE OF GASTRODUODENAL HEMORRHAGE. [CASE REPORT] *(E.)* Chhatbar, D. R. (Crewe Mem. Hosp., England). *J Roy Coll Surg Edinb* 13(2):100-102, 1968.

7027 BEHAVIOR OF ALDOSTERONE IN CHRONIC PEPTIC ULCERS. *(Pol.)* Bojanowicz, K. (1st Clin. Intern. Dis., Acad. Med., Lodz, Poland), A. Zubowski and O. Szczecińska. *Pol Tyg Lek* 23(26):994-995, 1968.

7028 PEPTIC ULCERS IN INFANTS. A SURGICAL EMERGENCY. *(Fr.)* Daridon, F. (Brest, France). *Ouest Med* 21(4):289-301, 1968.

7029 STOMACH ULCERS AND PORTAL HYPERTENSION. A BLEEDING STOMACH ULCER AFTER A SPLENO-RENAL ANASTOMOSIS FOR PORTAL THROMBOSIS. *(Fr.)* Rautureau, J. (French Mussulman Hosp., Bobigny, France), D. Sterin and M. Hivet. *Gaz Med France* 75(17):3617-3622, 1968.

7030 OUR POINT OF VIEW ON PEPTIC ULCER SURGERY. *(Sp.)* Estades Ventura, A. (Clin. Hosp. Fac. Med., Madrid, Spain). *Cir Ginec Urol* 22(1):96-103, 1968.

7031 SURGICAL TREATMENT OF STOMACH AND DUODENAL ULCERS. *(Bul.)* Vasilev, N., G. Krustinov and N. Tsankov. *Suvr Med* 19(6):503-510, 1968.

7032 ANASTOMOTIC INDEXES OF GASTRECTOMY FOR PEPTIC ULCER. *(E.)* Nakao, Y. (Wakayama Med. Coll., Japan), M. Katsumi, K. Wada and Y. Nakase. *Wakayama Med Rep* 13(2):65-69, 1968.

7033 THE NATURAL HISTORY OF PEPTIC ULCER IN MAN. *(Sp.)* Rubio Sanchez, J. L. (Fac. Med., Valladolid, Spain). *Rev Esp Enferm Apar Dig* 27(3):487-526, 1968.

7034 GASTROJEJUNOCOLIC FISTULAS IN OPERATIONS FOR PEPTIC ULCER. SEVEN CASES. *(Sp.)* Hernández Guío, C. (Jiménez Díaz Found., Madrid, Spain), A. E. Acosta, A. Pérez Gómez and R. Miranda Baiocchi. *Rev Clin Esp* 110(5):435-442, 1968.

7035 THE EXPERIMENTAL BASIS OF GASTRIC ULCER PHARMACOTHERAPY. *(E.)* Anichkov, S. V. and I. S. Zavodskaya, Eds. Oxford, Pergamon Press Ltd., 1968. 171 pp.

7036 GASTRIC BEZOARS AFTER PARTIAL GASTRECTOMY. REPORT OF FIVE CASES. *(E.)* Szemes, G. C. (U. California Sch. Med., San Francisco) and J. R. Amberg. *Radiology* 90(4):765-768, 1968.

7037 RETENTION OF BARIUM SUSPENSION IN THE FORM OF A CIRCULAR SHADOW AS A DIRECT ULCER SIGN. *(E.)* Kowalski, W. (City Hosp., Piotrków Trybunalski, Poland). *Pol Rev Radiol Nuclear Med* 32(3):323-326, 1968.

7038 FATE OF PERFORATED PEPTIC ULCERS. *(E.)* Elfving, G. (U. Cent. Hosp., Helsinki, Finland), K. Asp and G. Fock. *Ann Chir Gynaec Fenn* 57(3):307-311, 1968.

7039 DUODENOGRAPHY IN A STATE OF ARTIFICIAL HYPOTENSION IN THE DETECTION OF EXTRABULBAR ULCERS. *(Rus.)* Tarnopol'skaia, P. D. (Inst. Nutrit., Moscow, USSR) and N. S. Taits. *Klin Med (Moskva)* 45(10):95-99, 1968.

7040 CURRENT CONCEPTS OF PEPTIC ULCERATION. *(Rev.)(E.)* Bralow, S. P. (Temple U. Sch. Med., Philadelphia, Pa.). *Amer J Dig Dis* 14(9):655-677, 1969.

7041 EFFECT OF A SINGLE DOSE OF PHENTOLAMINE AND MJ 1999 ON ASPIRIN-INDUCED GASTRIC ULCERATION IN RATS. *(E.)* Djahanguiri, B. (Fac. Med. U. Tehran, Iran). *J Pharm Pharmacol* 21(8):541-542, 1969.

7042 EXCRETION OF 5-HYDROXYINDOLOACETIC ACID (5-HIAA) AND SUBJECTIVE SYMPTOMS IN GASTRIC AND DUODENAL ULCER IN MAN. *(Pol.)* Pokora, J. (2nd Clin. Intern. Dis., Lublin, Poland), J. Czarnecki and M. Matuszewski. *Pol Tyg Lek* 24(21):794-797, 1969.

7043 MEDICAL TREATMENT OF PEPTIC ULCER. *(E.)* Lennard-Jones, J. E. *Med Rev* 1(7):7-8, 1969.

7044 THE ROLE OF THE PYLORUS IN THE AETIOLOGY OF GASTRIC ULCER. *(Rev.)(E.)* Connell, A. M. (Inst. Clin. Sci., Queen's U., Belfast, Ireland). *Rendic Riun Rom Gastroent* 1(1):25-34, 1969.

7045 COMPLICATIONS OF PEPTIC ULCER. *(E.)* Gupta, S. (Coll. Med. Sci., Banaras Hindu U., India). *Indian Med J* 63(5):141-144, 1969.

7046 CONTROVERSIES ASSOCIATED WITH THE SURGICAL TREATMENT OF GASTRIC ULCER. *(Rev.)(E.)* Welch, C. E. (Harvard Med. Sch., Boston, Mass.). *Amer J Gastroent* 51(5):387-393, 1969.

7047 PEPTIC ACTIVITY AFTER THE ADMINISTRATION OF PENTAGASTRIN AND IN GASTRODUODENAL DISEASE. *(E.)* Pritchard, M. H. (Inst. Clin. Sci., Queen's U., Belfast, Ireland) and A. M. Connell. *Gut* 10(4):303-306, 1969.

7048 CLINICAL TRIAL OF DEGLYCYRRHIZINIZED LIQUORICE IN GASTRIC ULCER. *(E.)* Turpie, A. G. G. (Stobhill Gen. Hosp., Glasgow, England), J. Runcie and T. J. Thomson. *Gut* 10(4):299-302, 1969.

7049 FREE PERFORATION OF GASTRODUODENAL ULCER: CONCLUSIONS DRAWN FROM 168 CASES. *(It.)* Mancia, A. (1st Surg. Pathol. Dept., U. Rome, Italy), R. Montagnini, E. Crisci and M. Emanuelli. *Minerva Chir* 24(10):581-592, 1969.

7050 AN ANALYSIS OF THE RESULTS OF SURGICAL TREATMENT OF DUODENAL ULCER FROM SELECTED MEDICAL CENTERS. *(Rev.)(E.)* Thorlakson, R. H. *Winnipeg Clin Quart* 22(3):103-111, 1969.

7051 MODERN TRENDS IN SURGICAL TREATMENT OF DUODENAL ULCER. *(E.)* Desai, J. R. (B. J. Med. Coll., Ahmedabad, India). *Punjab Med J* 17(1):41-47, 1967.

7052 NEW PROCEDURE IN SELECTIVE GASTRIC VAGOTOMY. *(Por.)* De Azevedo, M. L. (St. Vincent de Paul Hosp., Ubá, Brazil). *Hospital (Rio)* 72(3): 903-911, 1967.

7053 MANAGEMENT OF RECURRENT PEPTIC ULCER SYNDROME: CLINICAL EVALUATION OF AN ANTACID-ANTIPEPTIC TABLET. *(E.)* Jefferson, N. C. (Provident Hosp., Chicago, Ill.). *Clin Med* 76(4):35-38, 1968.

7054 ANTACIDS IN THE TREATMENT OF PEPTIC ULCER. *(E.)* Dotavall, G. (Sahlgren's Hosp., Göteborg, Sweden) and A. Walan. *Acta Med Scand* 182(5): 529-537, 1967.

See also: 6737,6822,6920,6923,6930,7482,7651

### 7055 TWELVE CASES OF CROHN'S DISEASE, ONE DUODENAL, SURGICALLY TREATED.

*(Fr.)* de Meersman, J. (Arlon Hosp., Belgium). *Acta Chir Belg* 67(10):1011-1028, 1968.

Case reports are presented for 12 patients with Crohn's disease (7 males and 5 females, 19-67 yr old), 11 of them farmers. The first symptoms, which appeared in 7 before the age of 35, and in 2 cases after the age of 50, were: abdominal pain (11 cases) and diarrhea (5). Vomiting was present in 6 cases with the occlusive syndrome. Loss of weight was remarkable in 6 over a long period (from 3 to 10 yr); among these patients fistulas were found in 5 and alterations of other abdominal organs in 3 (left ovary, bladder and perineum). One patient, with distal and proximal lesions of the duodenum and the jejunum showed abdominal pains, associated with vomiting and loss of weight; gastric retention from duodenal occlusion, syndrome of malabsorption and occult hemorrhages. An erroneous diagnosis of appendicitis was made 5 times. Laparotomy showed characteristic lesions, localized at the distal ileum in 11, at the jejunum in 1. The operations performed were in 3 simple laparotomy, in 5 resection, in 4 derivation. Four patients died postoperatively. Very few were cured.

### 7056 GALLSTONES IN PATIENTS WITH DISORDERS OF THE TERMINAL ILEUM AND DISTURBED BILE SALT METABOLISM.

*(E.)* Heaton, K. W. (Dept. Med., U. Bristol, England) and A. E. Read. *Brit Med J* 3(5669): 494-496, 1969.

As the result of a combined historical and radiological survey gallstones were found in 23 (8 male, 15 female with peak incidence between 30 and 50 yr) of 72 patients (33 male, 39 females) with disorders of the terminal ileum (31.9%). This is 4 to 5 times the expected incidence of cholelithiasis. Only 5 of the 23 had gallstone symptoms. In these 23 patients the incidence of gallstones were not related to age, but did, however, increase with increased duration of the ileal disorder. The ileal disorders included Crohn's disease (57 surgical cases, 10 medical), carcinoid (2), trauma (2), and gangrene (1). Glycine/taurine conjugation ratios of bile salts in the bile were abnormally high in 10 of 11 patients with ileal disorders. Both impaired bile salt recirculation and absorption of poorly soluble bacterially degraded bile salts are possible causes of the cholelithiasis in these patients.

### 7057 RADIOLOGICAL NOTES. REGIONAL ENTERITIS OF DUODENUM AND ILEUM. [CASE REPORT]

*(E.)* Bloch, C. (Mt. Sinai Hosp., New York, N. Y.) and H. M. Peck. *J Mount Sinai Hosp NY* 34(5):529-534, 1967.

### 7058 SEGMENTARY ENTERITIS. (ETIOLOGY AND PATHOGENESIS).

*(It.)* Alonzo, M. (United Hosp., Naples, Italy). *Rass Int Clin Ter* 47(18):1020-1027, 1967.

### 7059 FREE PERFORATION IN REGIONAL ENTERITIS. [CASE REPORT]

*(E.)* Nasr, K. (Billings Hosp., Chicago, Ill.), D. A. Morowitz, J. G. D. Anderson and J. B. Kirsner. *Gut* 10(3):206-208, 1969.

### 7060 AGAMMAGLOBULINEMIA AND REGIONAL ENTERITIS. [CASE REPORT]

*(E.)* Eggert, R. C. (U. Minnesota Hosp., Minneapolis), I. D. Wilson and R. A. Good. *Ann Intern Med* 71(3):581-585, 1969.

## Malabsorption

**7061** **DIAGNOSIS OF LACTOSE MALABSORPTION BY THE LACTOSE TOLERANCE TEST WITH PERORAL ETHANOL ADMINISTRATION.** *(E.)* Jussila, J. (2nd Dept. Med., U. Helsinki, Finland). *Scand J Gastroent* 4(4):361-368, 1969.

To assess the reliability of the oral lactose tolerance test with ethanol (LTTE), jejunal lactose activity and the curves of blood glucose and galactose after an oral load of 50 g lactose were estimated in 75 patients (46 of whom were admitted for lactose absorption studies, 29 were randomly selected). Forty-eight were women (mean age 45.5 yr) and 27 were men (mean age 44.5 yr). The galactose metabolism was inhibited by an oral ethanol dose (300 mg/kg body weight). The reproducibility of the maximum rise in blood glucose was good and that in galactose satisfactory in the 11 patients tested. The maximum rise of blood galactose correlated very well with the jejunal lactase activity in patients with normal histology of the small intestine.

**7062** **GLUCOSE–GALACTOSE MALABSORPTION. A GENETIC STUDY.** *(E.)* Melin, K. (Dept. Pediat., U. Lund, Sweden) and G. W. Meeuwisse. *Acta Paediat Scand* (Suppl. 188):19-24, 1969.

The pedigree of 6 cases (2 male and 4 female) of glucose-galactose malabsorption has been prepared. In addition to the 6 cases, there were in the same pedigree at least 4 more instances of death in early infancy due to intractable diarrhea. These probably resulted from glucose-galactose malabsorption. The parents of the patients were healthy and had no history of chronic diarrhea in infancy or thereafter. As judged by oral glucose tolerance tests on 2 pairs of parents they had normal glucose absorption. No renal glucosuria, present in all the patients, was found in the parents. Glucose-galactose malabsorption has an autosomal recessive mode of inheritance. In 5 patients (from 4 different sibships) in whom the urinary excretion of amino acids was examined, 4 had increased excretion of $\beta$-aminoisobutyric acid although they were in a good nutritional state. Of 7 parents examined, 2 excreted increased amounts of the same compound. The finding of this selective aminoaciduria is probably incidental and, at least in the children, is not believed to be genetically determined.

**7063** **DISACCHARIDE MALABSORPTION.** *(Fin.)* Pettersson, T. (Cent. Hosp., Helsinki U., Finland). *Finska Laksallsk Handl* 113(1):3-15, 1969.

Glucose-galactose and lactose tolerance tests were performed in 64 patients (30 men, 34 women) admitted for gastrointestinal disorders. Intestinal biopsy at the level of the suspensory muscle of the duodenum was done in 16. Histological studies showed a normal intestinal mucosa and a normal disaccharidase activity in all 16. Nineteen patients had a flat lactose tolerance curve but a normal glucose-galactose tolerance. Of 17 of these patients biopsied, 14 had normal intestinal mucosa and a selective lactose deficiency, 2 had normal mucosa and normal enzyme activity, while 1 had atrophic intestinal mucosa and general disaccharidase deficiency. Most cases of lactase deficiency were detected in patients admitted for chronic enterocolitis or irritable colon. No complications occurred in connection with the biopsies.

**7064** **THE XYLOSE TEST IN THE NORMAL CHILD AND INFANTILE INTESTINAL MALABSORPTION. (CELIAC SYNDROME, LAMBLIASIS).** *(It.)* Rigillo, N. (Dept. Clin. Pediat. U. Bari, Italy), E. Lattanzi, G. Paganetti and M. Torelli. *Minerva Pediat* 21(21):960-965, 1969.

Standard urinary xylose test values in 48 normal children of various ages (from less than 1 yr to 10 yr of age were statistically analyzed). Values were found to vary with age. Results also indicated that it is necessary to lengthen the observation time of the test to as much as 24 hr in inverse proportion to age. Values obtained during the first year of life are to be regarded as quite tentative. Similar investigations conducted in 22 children with celiac syndrome confirmed the validity of the xylose test. A statistical comparison between the normal and pathological values as a function of age indicated that a correct evaluation of data requires reference to normal values of the age of the subject. In 5 cases of secondary malabsorption due to lambliasis, disappearance of the parasite from the stool was followed by normalization of the xylose test values.

**7065** **LIPIODOL ABSORPTION AND URINARY IODIDE EXCRETION AS A SCREENING TEST FOR STEATORRHEA.** *(E.)* Amenta, J. S. (U. Pittsburgh Sch. Med., Pa.). *Clin Chem* 15(4):295-306, 1969.

A Lipiodol (iodized poppy seed oil) absorption test is proposed as an effective screening technique for lipid malabsorption. Urinary iodide excreted 8-12 hr after Lipiodol ingestion is converted to iodine, extracted into chloroform, and quantified photometrically. Urinary iodide was compared with fecal fat excretion in a series of 12 patients (aged 1-68 yr) with mild to severe symptoms of active intestinal disease and 12 patients (aged 1-55 yr) without symptoms of intestinal disease. In the asymptomatic group all except 1 excreted less than 8.5% of the ingested fat, and 10 had urinary iodide values of 0.4 mM/L or more. In the patients with symptoms of intestinal disease, 5 had normal iodide excretion and fat excretion. The remaining 7 excreted urine containing less than 0.4 mM/L iodide; 6 of these showed abnormal fat absorption as measured by a fat balance study, and 1 patient had a normal fat excretion and was considered a false positive. No false negatives were found. Thirty-seven adults and 17 children tested subsequently by the Lipiodol test gave similar and consistent results. The simplicity of the test, coupled with the high correlation with the fat balance studies, recommend its use in the clinical laboratory as a valid screening procedure in all patients with suspected steatorrhea. It is useful in defining steatorrhea of diverse etiology and is not limited to detecting steatorrhea associated with fibrocystic disease in children.

**7066** **AUTOANTIBODIES AND THE COELIAC SYNDROME IN CHILDREN.** *(E.)* Holland, P. D. J. (Our Lady's Hosp. Sick Child., Dublin, Ireland), O. Browne, E. Tempany and C. Doyle. *J Irish Med Ass* 62(385): 257-259, 1969.

Jejunal biopsy material and sera from 20 children (age range 3 months to 8 yr, 10 under 1 yr) with the celiac syndrome were studied by fluorescent techniques for autoimmune antibodies. Jejunal biopsies and sera from normal children served as controls. No evidence was found of autoimmune antibody attachment to the mucosa or of jejunal autoantibody in the sera of the celiac cases. Assessment of the plasma cell population of the lamina propria of jejunal biopsies from 18 children with the celiac syndrome was undertaken using fluorescein conjugated anti-human gamma globulin and IgA, IgG and IgM antisera. In contrast to the findings of others no predominance of IgA producing plasma cells could be confirmed. There was a deficit between the total globulin producing cell population density and the sum of the totals of IgA, IgM and IgG producing cells, indicating that other immunoglobulins are produced in the lamina propria of both normal and celiac children. This deficit ranged from 10 to 90% and averaged about 50%.

7067 DIAGNOSIS OF LACTOSE MALABSORPTION BY THE LACTOSE TOLERANCE TEST WITH PERORAL ETHANOL ADMINISTRATION. *(E.)* Jussila, J. (2nd Dept. Med., U. Helsinki, Finland). *Scand J Gastroent* 4(4):361-368, 1969.

To test the reliability and usefulness of the oral lactose tolerance test with ethanol (LTTE), jejunal lactase activity and the curves of blood glucose and galactose after an oral load of 50 g lactose were estimated in 75 patients (27 male, 48 female; ages 19-63). Of 75 biopsies of the small intestine, histology was normal in 62; 8 had increased numbers of round cells but no villous changes, and 5 had definite changes of the villi. In patients with normal jejunal histology the maximum rise of blood galactose seemed to correlate with jejunal lactase activity very well, and better than the maximum rise of blood glucose. Because of the possibility of failure of ethanol inhibition in some patients, the combination of blood glucose and galactose determinations seems desirable. The lactose tolerance test with ethanol gives a reliable picture of lactose absorption in patients with normal histological and anatomical conditions of the small intestine. It obviates the need for estimation of lactase activity and is especially recommended for population surveys. No definite conclusions could be drawn regarding patients with histological changes in the small intestinal mucosa and the patients with gastrojejunostomy, since the material was limited and normal lactase activities in such conditions have not been estimated by the method used.

7068 INTESTINAL LOSS OF L-TYROSINE INVESTIGATED BY RADIOISOTOPIC TECHNIQUES. *(It.)* Barbara, L. (Inst. Special Med. Path. Clin. Methodol., U. Bologna, Italy), G. A. Lanfranchi and F. Addarii. *Arch Ital Mal Appar Dig* 35(5):479-486, 1969.

$^{131}$I-labelled L-tyrosine loss in feces was investigated in 10 normal subjects and in 34 patients with various gastrointestinal protein-losing syndromes (gastritis, hernia, gastric resection, gastric neoplasia, sprue, ulcerative colitis, colon cancer, hepatic cirrhosis, chronic pancreatitis, endocrine disorders). Normal subjects showed a tyrosine loss of 0.2 to 0.8%, and the pathological cases had an abnormal increased fecal loss of this amino acid. A comparison of the results with findings of a previous study with $^{51}$Cr albumin indicates that every protein-losing gastroenteropathy is also an amino acid-losing gastroenteropathy. The $^{131}$I-tyrosine technique revealed a higher frequency of pathological values than the procedure using labelled albumin, especially in cases of stomach diseases, pancreatitis and gastrointestinal neoplasias.

7069 D-XYLOSE TEST AND BIOPSY OF THE MUCOSA OF THE SMALL INTESTINE AFTER GASTRECTOMY. *(Cz.)* Beňo, I. (Inst. Nutrit. Res., Bratislava, Czechoslovakia), A. Bučko and J. Babala. *Cesk Gastroent Vyz* 22(8):505-512, 1968.

7070 STEATORRHEA AND NUTRITIONAL DISORDERS. MALABSORPTION SYNDROME. *(Cz.)* Krondl, A. (Inst. Nutrit. Res., Prague, Czechoslovakia), I. Skála, R. Šťastná, M. Vulterinová, H. Vavřínková and J. Pechar. *Cesk Gastroent Vyz* 22(3):162-173, 1968.

7071 RICKETS IN CELIACA. *(Cz.)* Pelikán, L. (Med. Fac., Palacký U., Olomouc, Czechoslovakia) and M. Černý. *Cesk Pediat* 22(10):913-916, 1967.

7072 ALLERGY OR FOOD INTOLERANCE. *(Fr.)* Alemany-Vall, R. (Nu. Sra. Esperanza Hosp., Barcelona, Spain). *Maroc Med* 47(506):611-616, 1967.

7073 SUBACUTE DIARRHEA WITH MALABSORPTION IN AN ADULT DUE TO INTOLERANCE TO GLUTEN AND INFECTIOUS JEJUNITIS. *(Fr.)* Levrat, M., R. Truchot, R. Lambert, J. Pasquier and E. Phelip. *Rev Lyon Med* 16(18):741-745, 1967.

7074 FRUCTOSE INTOLERANCE. [CASE REPORT] *(E.)* Black, J. A. (Sheffield Child. Hosp., England) and K. Simpson. *Brit Med J* 4(5572):138-141, 1967.

7075 DETECTION OF PROTEIN-LOSING ENTEROPATHY IN CELIAC DISEASE BY IMMUNOCHEMICAL METHODS. *(Pol.)* Zareba, J. (Child. Dis. Clin., Acad. Med., Zabrze, Poland) and Z. Szczepański. *Pol Tyg Lek* 23(4):121-123, 1968.

7076 THE BIOCHEMISTRY OF MALABSORPTION. *(Ger.)* Fischer, W. (Physiol. Chem. Inst., U. Erlangen-Nürnberg, Germany). *Fortschr Med* 85(20):863-865, 1967.

7077 THE ACTION OF FOLIC ACID ABSORPTION IN ACUTE ENTERITIS IN INFANTS. *(It.)* Mussa, G. C. (Pediat. Clin., U. Turin, Italy), D. Pavesio and R. Ballario. *G Mal Infett* 19(7):438-440, 1967.

7078 ULTRASTRUCTURAL FEATURES OF THE JEJUNAL MUCOSA IN THE COURSE OF MALABSORPTION SYNDROMES. *(It.)* Canepa, M. (Dept. Pathol. Anat., U. Genoa, Italy), D. Buffa, P. Rossi, G. Vignola and G. Marenco. *Minerva Pediat* 21(19):849-866, 1969.

7079 FECAL FATS IN THE CELIAC SYNDROME. *(E.)* Penfold, W. A. F. (Radcliffe Infirm., Oxford, England) and W. M. Keynes. *Lancet* 2(7558):50-51, 1968.

7080 STEATORRHOEA AND PLASMA-ALKALINE-PHOSPHATASE. *(E.)* Krikler, D. M. (Prince of Wales Gen. Hosp., London, England). *Lancet* 2(7558):51, 1968.

7081 FAECAL FATS AND THE COELIAC SYNDROME. *(E.)* Forshaw, J. (Sefton Gen. Hosp., Liverpool, England). *Lancet* 1(7553):1204-1205, 1968.

7082 COURSE AND PROGNOSIS OF TROPICAL SPRUE. *(E.)* Chuttani, H. K. (Maulana Azad Med. Coll., New Delhi, India), D. Kasthuri and R. C. Misra. *J Trop Med Hyg* 71(4):96-99, 1968.

7083 SHORTCOMINGS OF SIDE-TO-SIDE INTESTINAL ANASTOMOSIS WITH PARTICULAR REFERENCE TO THE BLIND LOOP SYNDROME. *(E.)* Kolmanić, P. (Med. Ctr. Čakovec, Yugoslavia). *Med J (Belgrade)* 90(6):59-61, 1968.

7084 FAECAL FATS IN THE COELIAC SYNDROME. *(E.)* McNicholl, B. (U. Coll. Reg. Hosp., Galway, Ireland), J. D. Kennedy and B. Egan. *Lancet* 1(7554):1250, 1968.

7085 THE MALABSORPTION SYNDROME. PATHOGENESIS AND PATHOLOGICAL ANATOMY. *(Ger.)* Becker, V. (Pathol. Inst., Karlsruhe, Germany). *Fortschr Med* 85(19):805-808, 1967.

7086 THE CLINICAL PICTURE OF THE MALABSORPTION SYNDROME. *(Ger.)* Demling, L. (Med. Clin., U. Erlangen-Nürnberg, Germany). *Fortschr Med* 85(19):809-811, 1967.

7087 AN INFANT WITH BOTH CYSTIC FIBROSIS AND COELIAC DISEASE. [CASE REPORT] *(E.)* Hide, D. W. (Bristol Royal Hosp. Sick Child., England) and D. Burman. *Arch Dis Child* 44(236):533-535, 1969.

7088 SPRUE AND SPRUE-LIKE DIARRHOEAS WITH MALABSORPTION AND STEATORRHOEA. *(Rev.)(E.)* Sengupta, K. K. *Calcutta Med J* 66(6):168-171, 1969.

7089 MEDIUM CHAIN TRIGLYCERIDES IN THE TREATMENT OF MALABSORPTION DISORDERS. *(Sw.)* Johansson, C. (Eriks Hosp., Stockholm, Sweden), S. Moberg and L. H. Nilsson. *Nord Med* 82(30):921-925, 1969.

7090 MEDIUM CHAIN TRIGLYCERIDES. *(Fl.)* Choos, Y. (St. Rafael Hosp., Louvain, Belgium) and G. Vantrappen. *T Gastroent* 12(2):168-178, 1969.

7091 HOOKWORM DISEASE, MALABSORPTION, AND MALNUTRITION. *(Rev.)(E.)* Pitchumoni, C. S. (Yale U. Sch. Med., New Haven, Conn.) and M. H. Floch. *Amer J Clin Nutr* 22(6):813-816, 1969.

7092 BACTERIAL CONTAMINATION OF THE UPPER SMALL BOWEL IN TROPICAL SPRUE. [CASE REPORT] *(E.)* Gorbach, S. L. (Calcutta Sch. Trop. Med., India), J. G. Banwell, R. Mitra, B. D. Chatterjee, B. Jacobs and D. N. G. Mazumder. *Lancet* 1(7585):74-77, 1969.

7093 WHIPPLE'S DISEASE AND PAPILLEDEMA. AN UNREPORTED PRESENTATION. [CASE REPORT] *(E.)* Switz, D. M. (VA Hosp., Cleveland, Ohio) T. R. Casey and G. V. Bogaty. *Arch Intern Med (Chicago)* 123(1):74-77, 1969.

7094 CHILDHOOD CELIAC DISEASE IN ISREAL. EPIDEMIOLOGICAL ASPECTS. *(E.)* Lasch, E. (Tel Aviv U. Med. Sch., Israel), B. Ramot and G. Neumann. *Israel J Med Sci* 4(6):1260-1263, 1968.

7095 MATERNAL MALABSORPTION PRESENTING AS CONGENITAL RICKETS. [CASE REPORT] *(E.)* Begum, R. (Dept. Pediat., Whittington Hosp., London, England), M. de L. Coutinho, T. L. Dormandy and S. Yudkin. *Lancet* 1(7551):1048-1052, 1968.

7096 PANETH CELL BEHAVIOR IN INFANTILE CELIAC DISEASE. *(It.)* Vignola, G. ("G. Gaslini" Pediat. Clin., U. Genoa, Italy), F. Perfumo and B. Fregonese. *Minerva Pediat* 21(31):1426-1428, 1969.

See also: 6762,7226,7585

**7097** **MANAGEMENT OF THE NEWBORN WITH IMPERFORATE ANUS. INITIAL MANAGEMENT OF IMPERFORATE ANUS BY SIMPLE DILATATION, DECOMPRESSING COLOSTOMY, PERINEAL ANOPLASTY, OR COMBINED ABDOMINOPERINEAL PULL-THROUGH IS EVALUATED IN SIXTY-TWO PATIENTS OVER A TWENTY-YEAR PERIOD AT THE YALE-NEW HAVEN HOSPITAL.** *(E.)* Touloukian, R. J. (Yale-New Haven Hosp., Conn.) and L. K. Pickett. *Clin Pediat (Phila)* 8(7):389-395, 1969.

The results of surgical care of 62 newborn infants (36 male, 26 female) with imperforate anus are summarized: 90% had anomalies in either formation of the urorectal septum or failure of posterior "migration" of the rectum. The mortality rate was 30%, but most of the deaths were in untreated newborns having other severe congenital anomalies. Diagnosis should correlate physical findings with some abnormality during a specific phase of embryologic development. The value of upside-down lateral films of the pelvis in determining the initial treatment is questioned. X-rays of the chest, abdomen and lumbosacral spine, and i.v. pyelogram and cystogram, are important to detect associated anomalies. The overall results of perineal anoplasty for a low perineal fistula or obvious perineal bulging are good, which indicates that this is the procedure of choice with such newborns. A combined abdominoperineal pull-through operation following a preliminary colostomy is recommended for infants with high imperforate anus. Eventual function may be satisfactory if there is close supervision of the postoperative patient throughout infancy and childhood to prevent chronic fecal impactions and secondary megacolon.

**7098** ***ESCHERICHIA COLI*** **0:14 AND COLON HEMAGGLUTINATING ANTIBODIES IN INFLAMMATORY BOWEL DISEASE.** *(E.)* Thayer, W. R. (Rhode Island Hosp., Providence), M. Brown, M. H. Sangree, J. Katz and T. Hersh. *Gastroenterology* 57(3):311-318, 1969.

The incidence of germ-free rat feces, germ-free rat colon, and *Escherichia coli* 0:14 antibodies was more common in 91 patients (55 males, 36 females, average age 33.6 yr) with inflammatory bowel disease (universal colitis, 34, proctitis 21, regional enteritis 15, granulomatous colitis 21) than in 34 other patients (18 male, 16 female, average age 43.5 yr) or in 30 healthy controls (14 males, 16 females, average age 34.4 yr). There was no difference in the incidence of positive titers between patients with granulomatous inflammatory bowel disease and ulcerative inflammatory bowel disease. If the granulomatous group was subdivided into diseases affecting only the small bowel (regional enteritis) and diseases affecting the colon alone, or as well (granulomatous colitis), there is also no difference in the incidence of positive titers. When patients with ulcerative inflammatory disease were subdivided into those with only localized proctitis or into a more universal distribution of the disease, the incidence again remains unchanged. The occurrence of positive titers bore no relation to age, sex, or ethnic group. Although the tests will not differentiate between the various nonspecific inflammatory bowel diseases, they might have some limited usefulness in differentiating ulcerative colitis and granulomatous colitis from other conditions causing inflammation of the intestine.

**7099** **SURGERY OF THE LARGE BOWEL FOR EMERGENT CONDITIONS. STAGED VS PRIMARY RESECTION.** *(E.)* McSherry, C. K. (New York Hosp. Cornell Med. Ctr., New York), W. R. Grafe Jr., H. S. Perry and F. Glenn. *Arch Surg (Chicago)* 98(6):749-753, 1969.

The hospital records of 150 patients (86 female, 64 male), average age 60.4 yr), who underwent staged colon procedures for emergent conditions were compared with the records of 50 patients (26 male, 24 female, average age 60.3 yr), who had had primary resections of the colon for similar reasons. The staged group included 98 patients with complications of acute sigmoid diverticulitis, 45 with carcinoma of the colon, 3 with proctoscopic perforations, 2 with sigmoid obstruction secondary to ovarian cysts and endometriosis and 1 each with granulomatous colitis and nonspecific inflammation. In the primary resection group were noted diverticulitis (19), ulcerative colitis (5), regional enteritis causing obstruction of the cecum (3), and perforated appendices with colonic obstruction (2). Fourteen others had colon carcinomas and 7 were operated on for miscellaneous reasons. There were 9 deaths among the staged patients (6%). Three died with infections, 2 died of cardiovascular complications, 2 of pulmonary complications and 2 in renal failure. There were significant nonfatal postoperative complications in 46 of the staged group. Included were infection (24), pulmonary problems (20), technical (11), cardiovascular (7), renal (7) and miscellaneous difficulties (13). The average hospital stay was 62.9 days. There were 9 deaths in the primary resection group (18%). The causes of death included hemorrhage (2), pulmonary embolus (2), carcinoma (2), coronary occlusion (1), peritonitis (1), and aplastic anemia due to antimicrobials (1). The nonfatal complications in 23 patients included infection (14), cardiovascular (5), technical (4), pulmonary (2), and miscellaneous (6). The average hospital stay was 36.7 days. The procedure of choice for most patients with emergent conditions of the proximal segments of colon is primary resection. In patients with similar disease in the distal large bowel staged operations are recommended.

**7100** **INCIDENTAL APPENDECTOMY AND ITS EFFECT ON THE INCIDENCE OF WOUND INFECTION IN CHOLECYSTECTOMY.** *(E.)* Bogart, J. N. (Brooke Army Med. Ctr., Fort Sam Houston, Tex.) and D. G. Sebesta. *Amer Surg* 35(9):650-652, 1969.

A retrospective study of 790 instances of cholecystectomy performed during an 18 yr period showed that incidental appendectomies were performed in 280. Statistical comparison of the incidence of wound infection that occurred in those patients who underwent incidental appendectomy (17 of 280 or 6.1%) and those who did not (28 of 510 or 5.5%) revealed no difference. An evaluation of the effect of other associated surgery (e.g., umbilical herniorrhaphy vagotomy and pyloroplasty gastrectomy) showed that there was a higher incidence of infection in these but comparison of cases with and without incidental appendectomies demonstrated that removal of the appendix in no way increased the incidence of wound infection. The incidental removal of the appendix appears to cause no increase in the incidence of wound infection in patients who underwent other surgery.

## LARGE INTESTINE

7101 **FACTORS INFLUENCING SURVIVAL AFTER RESECTION IN CANCER OF THE COLON AND RECTUM.** *(E.)* Dwight, R. W. (VA Surg. Adjuvant Group, Washington, D. C.), G. A. Higgins and R. J. Keehn. *Amer J Surg* 117(4):512-522, 1969.

A statistical analysis of 1064 records of patients operated on for cure of cancer of the colon and rectum is presented. The use of triethylenethiosphosphoramide (total dose 0.6 mg/kg) as an adjuvant to surgery has produced no improvement in 5 yr survival. The postoperative mortality was influenced principally by cardiovascular complications (66 patients, 60.6% died), pulmonary (121 patients, 44% died), wound dehiscence (45 patients, 31% died), obstruction (31 patients, 26% died) and peritonitis (24 patients, 50% died). The presence of lymph node metastases, serosal penetration and technical complications greatly influence 5 yr survival, approximately halving that of those without their presence. Cancer originating in the rectum has a much less favorable prognosis than does cancer originating in the colon, (10-30% lower survival rates). Overall operative (30 day) mortality was 9.6%.

7102 **CARCINOMA OF THE COLON IN YOUNG PEOPLE.** *(E.)* Rosato, F. E. (Hosp. U. Pennsylvania, Philadelphia), T. G. Frazier, E. M. Copeland and L. D. Miller. *Surg Gynec Obstet* 129(1):29-32, 1969.

A review of 1084 patients with carcinoma of the colon disclosed 35 patients (18 male, 17 female) below the age of 35 yr. Familial polyosis was present in 2. Only 3, all with lesions on the left, were free of symptoms. Abdominal pain and weight loss of more than 10 pounds were the most common presenting symptoms. In 19 of the 35 patients, the lesions were within reach of the 25 cm sigmoidoscope. Seventy per cent of the patients were operated upon within 1 yr of their initial symptoms. The 5 yr survival rate was 43%, (15 of 35). The status of the lymph nodes was the most accurate prognostic factor.

7103 **MASSIVE COLONIC BLEEDING FROM DIVERTICULAR DISEASE.** *(E.)* Klein, R. R. (U. California Sch. Med., San Francisco) and D. M. Gallagher. *Amer J Surg* 118(4):553-557, 1969.

Of 12 patients (7 males, 5 females, average age 68 yr) with massive colonic bleeding requiring life-saving emergency surgery, total abdominal colectomy was performed in 6 with no deaths. When less than total abdominal colectomy was carried out, it was necessary to perform additional resections in half the cases. One death in this group resulted from multiple resections for continued bleeding. Total abdominal colectomy is believed to be the procedure of choice for massive colonic bleeding from diverticular disease when emergency operation is required.

7104 **IN SUPPORT OF BLIND TUBE CECOSTOMY IN ACUTE OBSTRUCTION OF THE DESCENDING COLON. ANALYSIS OF NINETY-THREE EMERGENCY CECOSTOMIES.** *(E.)* Westdahl, P. R. (U. California Sch. Med., San Francisco) and T. Russell. *Amer J Surg* 118(4):577-581, 1969.

The records of 93 patients (most over 70 yr) with acute obstruction of the descending colon who underwent emergency cecostomy in a 20 yr period were reviewed. Most of the obstructions were due to carcinoma (73 of 81 cases with tissue diagnoses). Exteriorizing cecostomy was performed in 37 and tube cecostomy in 56. In the last 10 yr the trend has been toward blind tube cecostomy. Minor skin and wound irritation with tube cecostomy was common but exteriorizing the cecum did not improve the mortality, incidence of significant complications, or ease of decompression. The overall mortality was 21.5%, but few deaths were directly attributable to the cecostomy. Two-thirds of the tube cecostomies closed spontaneously and most of the remainder would probably have done so if given adequate time.

7105 **BOWEL OBSTRUCTION IN THE AGED PATIENT. (A REVIEW OF 300 CASES).** *(E.)* Greene, W. W. (U. California Sch. Med., San Francisco). *Amer J Surg* 118(4):541-545, 1969.

Of 300 cases of bowel obstruction in patients over 65 yr of age (average age 77 yr), 11% had had previous treatment for obstruction. The obstructions were almost evenly divided among conditions arising in the large bowel, the small bowel, and those caused by hernias. The mortality for obstructions arising in the large and small bowel was slightly over 30% whereas the mortality for obstructions from hernia was about 20%. Many complications appeared to be primarily cardiovascular (21% of the series) and pulmonary (20%) in origin, but sepsis (13.6%) and genitourinary complications (8%) were also frequent. Early diagnosis and treatment with special care to prevent complications are necessary if mortality and morbidity are to be improved.

7106 **CLINICAL SIGNIFICANCE OF A FAECAL ENTEROKINASE STUDIES IN DISEASE OF THE LARGE BOWEL.** *(E.)* Abasov, I. T. (Azerbaidzhan Inst. Radiol., Baku, USSR). *Digestion* 2(3):159-166, 1969.

Enterokinase activity was determined using the method of Shlygin (*Ter. Arkh.* 1:39-48, 1956) in 30 normal patients, 68 patients with acute and chronic bacterial, protozoan, and undetermined forms of colitis, and 63 patients with cancer of the rectum, sigmoid or descending colon. In 27 of the normal subjects, fecal enterokinase did not exceed 22 U/g. In 46 of the 68 patients (67%) with acute and exacerbated bacterial diarrhea and colitis, fecal enterokinase exceeded 100 U/g (2000 U/g in 1 female patient). In only 8 of 63 cancer patients (13%) did the fecal enterokinase exceed 100 U/g and the highest value was 337 U/g. In 70% of patients with cancer of the distal parts of the large bowel, including the rectum, enterokinase levels ranged from traces to 22 U/g. Enhanced enterokinase activity was noted in 7 of 19 patients with pultaceous or liquid stools and in 12 of 44 patients with well-forme stools. Enterokinase studies may be useful for the differential diagnosis of these diseases. Individuals with a persistently high fecal enterokinase following bacterial diarrhea cannot be regard as normal and need medical supervision to prevent relapse.

7107 **PROGNOSIS IN THE IRRITABLE-BOWEL SYNDROME. A PROSPECTIVE STUDY.** *(E.)* Waller, S. L. (Cent. Middlesex Hosp., London, England) and J. J. Misiewicz. *Lancet* 2(7624):753-756, 1969.

Seventy-four patients were referred to a clinic with abdominal pain and altered bowel habits for which no organic cause could be found after clinical, X-ray and pathological investigation or with diarrhea, alternating diarrhea and constipation without abdominal pain for which no organic cause could be found after investigation. After allowing for defaulting or leaving the area (16) incomplete investigations (4) or the presence of other diseases (4) 50 patients were available for investigation of the prognosis of the irritable bowel syndrome. Patients were seen at 6 month intervals for a period of 12-31 months. The irritable-bowel syndrome is a chronic relapsing condition, with onset usually before middle age. Although the severity of the symptoms varied during the follow-up period, the nature of the symptoms tended to remain constant in any 1 patient. Diagnostic difficulties lead to multiple investigations and sympathetic follow-up is beneficial.

7108 **PROGNOSIS OF CARCINOMA OF THE LARGE BOWEL IN THE PRESENCE OF LIVER METASTASES.** *(E.)* Oxley, E. M. (Westminster Hosp., London, England) and H. Ellis. *Brit J Surg* 56(2): 149-151, 1969.

Of 640 patients treated with laparotomy for carcinoma of the cecum, colon, and rectum over a 10 yr period, 112 were found to have liver metastases. Liver function tests were performed in 91 and were abnormal in 29. Alkaline phosphatase determinations (increased in 25 of 91) and SGPT levels were of particular diagnostic value. There were 3 postoperative deaths among the 112 patients (2.7%). Only 8 of the remainder were still alive at follow-up of 65 months.

7109 **HAEMORRHOIDECTOMY. A MODIFIED TECHNIQUE.** *(E.)* Keswani, M. H. (Bombay, India). *Indian J Surg* 29(8):432-438, 1967.

7110 **VOLVULUS CAECUM WITH NON-ROTATION OF MIDGUT. A REPORT OF TWO CASES.** *(E.)* Singh, J. (Med. Coll., Rohtak, India), D. Nath and W. Singh. *Indian J Surg* 29(7):380-383, 1967.

7111 **FREE PERFORATION IN CROHN'S DISEASE. [CASE REPORT]** *(E.)* Vyas, B. K. (Med. Coll., Baroda, India), B. D. Balar, K. N. Sehgal, S. P. Datti and B. A. Sayad. *Indian J Surg* 29(7):384-390, 1967.

7112 **RADIOLOGICAL NOTES. DIVERTICULITIS OF DESCENDING COLON SIMULATING CARCINOMA. [CASE REPORT]** *(E.)* Peck, H. M. (Mt. Sinai Hosp., New York, N. Y.). *J Mount Sinai Hosp NY* 34(5): 543-545, 1967.

7113 **OPERATIVE TREATMENT OF HIRSCHSPRUNG'S DISEASE IN ADULTS.** *(E.)* Fock, G. (U. Cent. Hosp., Helsinki, Finland) and L. Hjelt. *Ann Chir Gynaec Fenn* 56(4):449-452, 1967.

7114 **A CASE OF ESSENTIAL HYPERLIPIDEMIA IN A NURSED CHILD.** *(Cz.)* Mechlová, V. (Pediat. Res. Inst., Brno, Czechoslovakia), O. Saxl, V. Hrstka and O. Teyshchl Jr. *Cesk Pediat* 22(10):917-923, 1967.

7115 **THE IRRITABLE COLON SYNDROME.** *(E.)* Rotkow, M. J. (Mercy Hosp., Des Moines, Iowa). *J Iowa Med Soc* 57(9):908-911, 1967.

7116 **RESULTS OBTAINED FROM A CORTICOSTEROID AND CLIQUINOL PREPARATION IN PROCTOLOGY.** *(Por.)* Marigliano, F. (Aristides Maltez Hosp., Salvador, Brazil). *Hospital (Rio)* 72(5):1551-1554, 1967.

7117 **MECONIUM PLUG SYNDROME WITH AGANGLIONOSIS. [CASE REPORT]** *(E.)* Van Leeuwen, G. (Dept. Pediat., U. Missouri, Columbia), W. C. Riley, L. Glenn and C. Woodruff. *Pediatrics* 40(4 pt. 1): 665-666, 1967.

7118 **CHRONIC INTESTINAL OBSTRUCTION IN CHILDREN WITH AND WITHOUT MEGACOLON. FOLLOWUP STUDIES.** *(Ger.)* Fendel, H. (Surg. Clin., U. Tübingen, Germany), A. Flach and K. Krukenberg. *Fortsch Med* 85(18):782-784, 1967.

7119 **FAMILIAL MULTIPLE POLYPOSIS WITH ADENOCARCINOMA IN SITU OF THE COLON: REPORT OF A CASE.** *(E.)* Harbarger, A. L. (Green Cross Gen. Hosp., Cuyahoga Falls, Ohio). *J Amer Osteopath Ass* 68(4):366-371, 1968.

7120 **SPONTANEOUS PERFORATION OF THE SIGMOID.** *(Pol.)* Lasocki, J. (1st Surg. Clin., Acad. Med., Warsaw, Poland) and H. Olechnowicz. *Pol Tyg Lek* 23(16):597-598, 1968.

7121 **VOLVULUS OF THE APPENDIX.** *(It.)* Dell'Orto, V. (Legnano Gen. Hosp., Italy), G. Quaglia and L. Repossini. *Minerva Chir* 23(11):590-591, 1968.

7122 **AMPULAR DILATATION DURING RECTAL PROLAPSE.** *(Sp.)* Cano Ivorra, J. (Provincial Hosp., Valencia, Spain). *Cir Ginec Urol* 22(1):79-87, 1968.

7123 **AGANGLIONIC CONGENITAL MEGACOLON IN ADULTS.** *(Sp.)* Zarapico Romero, M. (Fac. Med. Sivelle, Spain). *Cir Ginec Urol* 22(2):313-325, 1968.

7124 **MALIGNANT ANAL MELANOMA. (10 CASES).** *(Pol.)* Klein, A. (Inst. Oncol., Warsaw, Poland). *Pol Tyg Lek* 23(4):142-143, 1968.

7125 **CHRONIC APPENDICITIS IN GIRLS DURING PUBERTY.** *(Pol.)* Cywińska, D. (Munic. Hosp., Gliwice, Poland). *Pol Tyg Lek* 23(26):973-975, 1968.

7126 **TERATOID TUMOR OF THE RECTUM.** *(Rus.)* Vvedenskii, Iu. A. (Tselinograd Med. Inst., USSR). *Vop Onkol* 14(4):100, 1968.

7127 **A CASE OF JUVENILE (16 YEARS OLD) RECTUM CANCER.** *(Jap.)* Mitobe, F., J. Ito, M. Niwayama, S. Hara and H. Shimizu. *Jap J Cancer Clin* 14(8):677-679, 1968.

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7128 TREATMENT OF VILLOUS POLYPS OF THE RECTUM. *(Rus.)* Inshakov, L. N. (N. N. Petrov Res. Inst. Oncol., Leningrad, USSR). *Vop Onkol* 13(10):71-76, 1967.

7129 A PECULIAR CASE OF INTESTINAL (PSEUDO) MYIASIS AND A CASE OF WOUND MYIASIS IN THE NETHERLANDS. *(E.)* Laarman, J. J. (Parasitol. Lab., Leyden U., Holland) and P. H. van Thiel. *Trop Geogr Med* 19(3):187-191, 1967.

7130 GASTROSCHISIS AND COLONIC OBSTRUCTION. [CASE REPORT] *(E.)* Coupland, G. A. E. (Royal North Shore Hosp., Sydney, Australia). *Med J Aust* 1(7):344-345, 1969.

7131 TORSION OF THE APPENDIX. [CASE REPORT] *(E.)* de Bruin, A. J. (Lyell McEwin Hosp., Elizabeth, Australia). *Med J Aust* 1(11): 581, 1969.

7132 PATHOGENESIS OF AUTONOMIC NERVOUS SYSTEM LESIONS OF THE INTESTINE IN CHAGAS' DISEASE. ELECTRON MICROSCOPIC STUDY. *(Por.)* Tafuri, W. L. (Fac. Med. U., Minas Gerais, Belo Horizonte, Brazil). *Rev Goiana Med* 14(1/2):11-19, 1968.

7133 INTESTINAL INVAGINATION. STUDY OF 31 CASES. *(Sp.)* Picanol P., J. (Hosp. Santa Cruz San Pablo, Barcelona, Spain). *Bol Soc Catalana Pediat* 29(136):470-482, 1968.

7134 A CASE OF EXTENSIVE INTESTINAL AGANGLIONOSIS WITH DIVERTICULOSIS OF THE COLON. *(E.)* Pietron, K. (Med. Acad., Lublin, Poland) and H. Naumik. *Pol Rev Radiol Nuclear Med* 32(3): 327-331, 1968.

7135 PERFORATIVE ACUTE APPENDICITIS WITH INFESTATION OF *TRICHOCEPHALUS TRICHIURUS.* *(Por.)* Arminante, J. C. (Inst. Adolfo Cruz, São Paulo, Brazil) and E. P. de Campos. *Rev Inst Adolfo Lutz* 28(1):71-77, 1968.

7136 TUMORS OF THE LARGE BOWEL. *(E.)* Jackman, R. J. and O. H. Beahrs. Philadelphia, Pa., W. B. Saunders Company, 1968. 379 pp.

7137 COMPUTER ANALYSIS IN THE DIFFERENTIATION OF BENIGN AND MALIGNANT POLYPOID LESIONS OF THE COLON. *(E.)* Youker, J. E. (U. California Sch. Med., San Francisco), S. Welin and G. Main. *Radiology* 90(4):794-797, 1968.

7138 DUPLICATION OF THE ALIMENTARY TRACT IN AN ADULT SIMULATING CARCINOMA OF THE DESCENDING COLON. *(E.)* Reilly, H. F. Jr. (Dartmouth Med. Sch., Hanover, N. H.), R. Weismann and J. R. Dyke. *Radiology* 90(4):769-770, 1968.

7139 NECROSIS OF THE CECUM DUE TO OVERDISTENTION. [CASE REPORT] *(E.)* Tucker, G. L. (Washington U. Sch. Med., St. Louis, Mo.). *Missouri Med* 65(3):193-195, 1968.

7140 SPONTANEOUS PERFORATION OF THE COLON. REPORT OF TWO CASES IN A FAMILY EXHIBITING MARFAN STIGMATA. *(E.)* Cook, J. M. (Oak Hill Hosp., Ohio). *Ohio Med J* 64(1):73, 1968.

7141 TUMORS OF THE LARGE INTESTINE. *(Ser.)* Glidžić, V. (Med. Fac., U. Belgrade, Yugoslavia), L. Rašović, D. Brkić, D. Tasić, L. Glišić and D. Dugalić. *Srpski Arh Celok Lek* 96(5):483-490, 1968.

7142 RADIOLOGICAL FINDINGS IN CHRONIC NONSPECIFIC INFLAMMATORY BOWEL DISEASE. *(E.)* Woloshin, H. J. (Temple U. Hlth. Sci. Ctr., Philadelphia, Pa.), S. P. Bralow and A. Bonakdarpour. *J Louisiana Med Soc* 120(2):49-57, 1968.

7143 UNUSUALLY AGGRESSIVE BEHAVIOR OF A CARCINOID OF THE RECTUM. [CASE REPORT] *(E.)* Cueto, J. (West Virginia U. Sch. Med., Morgantown), R. S. Salisbury, C. R. Chamberlain and E. F. Heiskell. *W Virginia Med J* 64(4):138-141, 1968.

7144 FURTHER EXPERIENCES WITH THE ROENTGENOLOGY OF THE PARACOLONIC GUTTER: DIFFERENTIATION BETWEEN FREE FLUID AND LOCALIZATION WITHIN THE SEROSA. *(E.)* Cimmino, C. V. (Mary Washington Hosp., Fredericksburg, Va.). *Radiology* 90(4):761-764, 1968.

7145 THE OCCURRENCE OF GLOMUS TUMORS IN THE ANAL REGION. *(Ger.)* Becker, V. (Pathol. Inst., Karlsruhe, Germany) and R. Pfister. *Fortschr Med* 85(20):855-857, 1967.

7146 THE PLACE OF APPENDICECTOMY IN THE TREATMENT OF YOUNG ADULT PATIENTS WITH POSSIBLE APPENDICITIS. *(E.)* Howie, J. G. R. (Western Infirm., Glasgow, England). *Lancet* 1(7556):1365-1367, 1968.

7147 THE DAVIS INCISION FOR APPENDICECTOMY *(E.)* Middleton, M. D. (Royal Infirm., Edinburgh, Scotland). *J Roy Coll Surg Edinb* 13(2):103-104, 1968.

7148 IRREDUCIBLE PROLAPSE OF THE RECTUM WITH THREATENED GANGRENE. [CASE REPORT] *(E.)* Da Rocha-Afodu, T. (Lagos U. Teaching Hosp., Nigeria) and E. A. Elebute. *W Afr Med J* 17(3):89-90, 1968.

7149 ENURESIS AND OBSTIPATION AS SYMPTOMS OF INTERNAL HERNIA OF THE INTERSIGMOID RECESS. *(E.)* Zysk, J. (Milit. Med. Hosp., Warsaw, Poland), B. Kotarbińska-Stefanowska and Z. Kaliciński. *Pol Rev Radiol Nuclear Med* 32(3):337-352, 1969.

## LARGE INTESTINE

7150 PRIMARY MASSIVE CANCER OF THE LARGE INTESTINE. *(Rus.)* Britvin, A. A. (Vologod Regional Oncol. Dispensary, USSR). *Vestn Khir Grekov* 99(11):122-123, 1967.

7151 ACUTE NECROTIZING COLITIS. [CASE REPORT] *(E.)* Ehrlich, F. (North Ryde Psychiat. Ctr., Australia). *Aust New Zeal J Surg* 37(2): 114-118, 1967.

7152 REVERSIBILITY OF RADIOLOGICAL APPEARANCES DURING CLINICAL IMPROVEMENT IN COLONIC CROHN'S DISEASE. [CASE REPORT] *(E.)* Jones, J. H. (St. Mark's Hosp., London, England), J. E. Lennard-Jones and A. C. Young. *Gut* 10(9):738-743, 1969.

7153 JEJUNAL DYSKINESIA: CASE REPORT AND REVIEW OF THE LITERATURE. *(E.)* Brown, J. E. (Tulane U. Sch. Med., New Orleans, La.), W. Woolverton and C. W. Pearce. *Southern Med J* 62(9):1102-1106, 1969.

7154 BOWEL OBSTRUCTION IN THE NEWBORN: A REVIEW OF THE LITERATURE AND PRESENTATION OF THREE CASES. *(E.)* Rockwell, E. G. Jr. (Spokane, Wash.). *Med Bull US Army Europe* 26(6): 175-180, 1969.

7155 CARCINOMA OF THE COLON. *(Rev.)(E.)* Wilson, H. (U. Tennessee Coll. Med., Memphis). *J Tenn Med Ass* 62(8):713-715, 1969.

7156 PERSISTENT CHANGES IN THE LARGE BOWEL FOLLOWING THE ENTEROCOLITIS ASSOCIATED WITH HIRSCHSPRUNG'S DISEASE. [CASE REPORT] *(E.)* Berry, C. L. (Hosp. Sick Child., London, England). *J Path* 97(4):731-732, 1969.

7157 EXPERIMENTAL ASPECTS OF ISCHEMIC COLITIS. *(E.)* Marcuson, R. W. (Middlesex Hosp., London, England), J. F. Arthur, M. Chapman and A. Marston. *Proc Roy Soc Med* 62(7):711-713, 1969.

7158 DIVERTICULOSIS OF THE COLON. *(It.)* Torsoli, A. (2nd Gen. Med. Clin., U. Rome, Italy), C. C. Cassano and A. Aluffi. *Rendic Riun Roma Gastroent* 1(1):13-24, 1969.

7159 THE TREATMENT OF HEMORRHOIDS BY THE PARKS METHOD. *(Fl.)* Seghers, K. (Imeldaziekenhuis, Mechelen, Belgium) and G. Verbeeck. *T Gastroent* 12(1):38-51, 1969.

7160 LACTULOSE: A NEW BOWEL REGULATOR. *(E.)* Watson, J. S. (Philips Roxane Lab., Inc., Columbus, Ohio) and W. R. Ebert. *Clin Med* 76(7):24-26, 1969.

7161 TORSION OF THE APPENDIX. *(E.)* de Bruin, A. J. (Lyell McEwin Hosp., Elizabeth, South Australia). *Med J Aust* 1(11):581, 1969.

7162 NECROTIZING COLITIS ASSOCIATED WITH RHEUMATOID ARTHRITIS. [CASE REPORT] *(E.)* Mogadam, M. (Henry Ford Hosp., Detroit, Mich.), B. M. Schuman, H. Duncan and R. B. Patton. *Gastroenterology* 57(2):168-172, 1969.

7163 HYPOGAMMAGLOBULINEMIA WITH NODULAR LYMPHOID HYPERPLASIA OF THE INTESTINE. REPORT OF A CASE WITH RECTOSIGMOID INVOLVEMENT. *(E.)* Bird, D. C. (NIH, Bethesda, Md.), J. B. Jacobs, M. Silbiger and S. M. Wolff. *Radiology* 92(7): 1535-1536, 1969.

7164 GIANT SOLITARY GAS CYST OF THE SIGMOID COLON. [A CASE REPORT] *(E.)* Vanapruks, S. (Long Island Jewish Hosp.-Queens Hosp. Ctr. Affiliation, N. Y.) and M. Fuhrman. *Radiology* 92(7):1533-1534, 1969.

7165 NON-PERFORATED APPENDICITIS PRESENTING AS SHOCK AND LIVER ABSCESS. [CASE REPORT] *(E.)* Grayer, S. P. (Walson Army Hosp., Fort Dix, N. J.). *Amer Surg* 35(6):461-462, 1969.

7166 THE VALUE OF MERCURY PERCHLORIDE AND OTHER AGENTS IN REDUCING TUMOUR RECURRENCE IN COLON ANASTOMOSIS. *(E.)* Hale, J. E. (Westminster Hosp., London, England). *Proc Roy Soc Med* 62(7):713-714, 1969.

7167 ISCHEMIC COLITIS: PRESENTATION OF SEVEN CASES. *(E.)* Bloch, C. (Mount Sinai Hosp., New York, N. Y.) and H. M. Peck. *J Mount Sinai Hosp NY* 36(4):324-343, 1969.

7168 ACUTE APPENDICITIS PRESENTING AS MULTIPLE, EXTRA-ABDOMINAL ABSCESSES. *(E.)* Geller, S. A. (Mount Sinai Sch. Med. City U. New York, N. Y.). *J Mount Sinai Hosp NY* 36(4):308-316, 1969.

7169 PRIMARY CARCINOMA OF RECTUM IN CHILDREN AND YOUNG ADULTS. [CASE REPORT] *(E.)* Satyanand (Irwin Hosp., New Delhi, India) and B. S. Rana. *Indian J Cancer* 6(1):38-43, 1969.

7170 HAZARDS CONNECTED WITH EMPTYING OF THE COLON. ABNORMAL HEMODYNAMIC REACTIONS FOLLOWING ENEMAS AND LAXATIVES IN A PATIENT WITH HYPERACTIVE CAROTID SINUS REFLEXES. *(E.)* Lønnum, I. (Aker Hosp., Oslo, Norway). *J Oslo City Hosp* 19(2/3):21-54, 1969.

7171 THE ULTRASTRUCTURE OF LEIOMYOBLASTOMA. WITH COMMENTS ON THE LIGHT MICROSCOPIC MORPHOLOGY. [CASE REPORT] *(E.)* Cornog, J. L. (U. Pennsylvania Sch. Med., Philadelphia). *Arch Path (Chicago)* 87(4):404-410, 1969.

7172 ELECTROLYTE DEPLETION SYNDROME. IN A PATIENT WITH FAMILIAL POLYPOSIS OF THE COLON. [CASE REPORT] *(E.)* Peterson, R. F. (Scott White Clin., Temple, Tex.), R. R. White and J. A. Bargen. *Arch Path (Chicago)* 87(4):443-446, 1969.

## LARGE INTESTINE

7173 **INFLAMMATORY DISEASES OF THE LARGE INTESTINE. INTERNIST'S REVIEW.** *(Ger.)* Demling, L. (Erlangen, Germany). *Langenbeck Arch Klin Chir* 319:326-333, 1967.

7174 **UNCOMMON METASTASIS OF A CARCINOMA OF THE RECTUM.** *(Ger.)* Prager, W. (Radiol. Clin., Karl-Marx U., Leipzig, Germany) and W. Taubert. *Fortschr Roentgen* 107(3):428-430, 1967.

7175 **INFLAMMATORY DISEASES OF THE LARGE INTESTINE. PATHOLOGIST'S REVIEW.** *(Ger.)* Krauspe, C. (Hamburg, Germany). *Langenbeck Arch Klin Chir* 319:309-326, 1967.

7176 **CHILAIDITIS SYNDROME AND ACUTE ABDOMEN.** *(Bul.)* Velchev, V. (1st Gen. Munic. Hosp., Sofia, Bulgaria) and N. Maleiev. *Suvr Med* 18(10): 832-835, 1967.

7177 **SIGMOIDOSCOPY. THE NEGLECTED AID IN CANCER DETECTION.** *(E.)* MacLeod, J. H. (Ferguson Clin., Grand Rapids, Mich.). *Nova Scotia Med Bull* 46(10):201-202, 1967.

7178 **THE EARLY DIAGNOSIS OF THE ACUTE ABDOMEN.** *(E.)* Cope, Z. (St. Mary's Hosp., Paddington, England). New York, Oxford U. Press, Inc., 1968. 202 pp.

7179 **PSEUDOTUMOR OF THE LARGE INTESTINE CAUSED BY FOREIGN BODY. [CASE REPORT]** *(E.)* Sokačić, F. (Med. Ctr., Vukovar, Yugoslavia). *Med J (Belgrade)* 90(8):26-30, 1968.

7180 **CANCER OF THE RECTUM AND SIGMOID. CLINICAL AND DIAGNOSTIC ASPECTS.** *(It.)* Jori, G. P. (Inst. Special Med. Pathol., U. Naples, Italy), G. Mazzacca, G. Budillon and A. di Simone. *Riforma Med* 82(13):341-350, 1968.

7181 **APPENDECTOMY PREVALENCE IN HOMOGENEOUS POPULATIONS.** *(E.)* Friskey, R. W. (Northwestern U. Med. Sch., Chicago, Ill.). *J Chronic Dis* 21(6):387-389, 1968.

7182 **INTUSSUSCEPTION IN THE ADULT. [CASE REPORT]** *(E.)* Harrington, J. D.(Sydney, Australia). *Aust Radiol* 12(1):56-57, 1968.

See also: 6502,6725,6742,6745,6754,6798,6851,
6969,6984,6990,6994,7188,7192

## Ulcerative Colitis

7183 **PSEUDOPOLYPOSIS IN ULCERATIVE COLITIS.** *(E.)* Jalan, K. N. (Western Gen. Hosp., Edinburgh, Scotland), W. Sircus, R. J. Walker, J. P. A. McManus, R. J. Prescott and W. I. Card. *Lancet* 2(7620):555-559, 1969.

Of 399 patients with ulcerative colitis seen between 1950 and 1967 it was found that 75 had pseudopolyposis, confirmed histologically in 47. Pseudopolyposis was more likely to occur in those patients with severe and extensive disease. The incidence in males was 19.7%, in females 18.2% and decreased with age. The duration of the disease was less than 6 months in 33%. The outcome of severe attacks of ulcerative colitis in the presence of pseudopolyps was found to be more favorable.

7184 **FIBRINOLYTIC ACTIVITY IN THE NORMAL AND INFLAMMED RECTAL MUCOSA.** *(E.)* Kwaan, H. C. (Johns Hopkins U. Sch. Med., Baltimore, Md.), A. Cocco, A. I. Mendelhoff and T. Astrup. *Scand J Gastroent* 4(5):441-445, 1969.

To determine if an abnormal hemostatic mechanism may account for mucosal friability in active ulcerative colitis, rectal biopsy specimens from normal subjects and from 25 patients with ulcerative colitis (16 with acute and active bleeding, 9 with inactive, healed lesions), 6 patients with regional enteritis, 2 with irradiation proctitis and 2 with nonspecific proctitis were studied for fibrinolytic activity by the histochemical fibrin slide technique. In normal rectal mucosa, lysis was observed frequently around vessels in the submucosa, less frequently in the capillary networks at the base of the crypts and only occasionally in the capillaries in the lamina propria. In all but 1 of the 16 specimens from active ulcerative colitis cases, lysis was commonly seen at capillaries in an edematous lamina propria, where lytic areas could be found near the mucosal surface. Lytic areas around masses of cellular debris were seen inside a crypt abscess. Also, the pathological specimens produced lysis on unheated slides only, indicating presence of plasminogen activator. Specimens from patients with regional enteritis had the same pattern as those from normal subjects. In the acute cases of proctitis with hyperemia of the mucosa areas of lysis occurred in relation to the hyperemic blood vessels.

7185 **CARCINOMA OF THE COLON IN ULCERATIVE COLITIS: WHAT IS THE RISK?** *(E.)* Henning, N. (Fac. Med., U. Erlangen, Germany). *German Med Monthly* 12(8):402-403, 1967.

7186 **AXIOMS AND OBSERVATIONS IN THE MODERN HOSPITAL TREATMENT OF CHRONIC ULCERATIVE COLITIS.** *(Rev.)(E.)* Lichstein, J. (Ctr. Hlth. Sci., Los Angeles, Calif.). *Med Times* 97(7):147-150, 1969.

7187 **THE TREATMENT OF ULCERATIVE COLITIS IN CHILDREN WITH ALTERNATE-DAY CORTICOSTEROIDS.** *(E.)* Sadeghi-Nejad, A. (New England Med. Ctr. Hosp., Boston, Mass.) and B. Senior. *Pediatrics* 43(5):840-845, 1969.

7188 **DIAGNOSIS AND TREATMENT OF DISEASES OF THE COLON WITH SPECIAL REFERENCE TO ULCERATIVE COLITIS.** *(Jap.)* Matsunaga, F. *Jap Arch Intern Med* 16(4):159-171, 1969.

7189 **NONSPECIFIC ULCERATIVE COLITIS.** *(Rev.)(E.)* Hawk, W. A. (Cleveland Clin. Found., Ohio), R. B. Turnbull Jr. and P. F. Schofield. *Surgery* 66(5): 953-964, 1969.

7190 **AETIOLOGY OF ULCERATIVE COLITIS. I. A REVIEW OF PAST AND PRESENT HYPOTHESES.** *(E.)* de Dombal, F. T. (Gen. Infirm., Leeds, England), P. R. J. Burch and G. Watkinson. *Gut* 10(4):270-276, 1969.

7191 **AETIOLOGY OF ULCERATIVE COLITIS. II. A NEW HYPOTHESIS.** *(E.)* Burch, P. R. J. (Gen. Infirm., Leeds, England), F. T. de Dombal and G. Watkinson. *Gut* 10(4):277-284, 1969.

7192 **CALCIFIED CARCINOMA OF THE COLON SUPERIMPOSED ON CHRONIC ULCERATIVE COLITIS. [CASE REPORT]** *(E.)* Shockman, A. T. (VA Hosp., Philadelphia, Pa.). *Amer J Dig Dis* 14(9):683-687, 1969.

7193 **ULCEROUS HEMORRHAGIC RECTOCOLITIS.** *(It.)* Dogliotti, G. C. (Gen. Med. Clin., U. Turin, Italy). *Minerva Med* 58(75):3175-3181, 1967.

See also: 6942,7173

## PANCREAS

**7194** **PANCREATIC ABSCESS.** *(E.)* Evans, F. C. (Hartford Hosp., Conn.). *Amer J Surg* 117(4): 537-540, 1969.

Fourteen patients (6 male, 8 female; aged 30-78) with pancreatic abscesses were treated during the past 17 yr. An abscess developed in 2.8% of patients with acute pancreatitis. Abdominal pain, anorexia, nausea, and weight loss were the most common symptoms. Fever and abdominal tenderness were the most frequent physical findings. Leukocytosis was present in 11 of the 14. Roentgenograms were usually diagnostic. Enteric pathogens were found in all (8) of the cases in which culture was carried out. Twelve patients underwent drainage procedures and 7 survived. All patients who did not have drainage of the abscess died. Postoperative complications were numerous; most frequently pulmonary difficulties including both effusion and pneumonitis. The pleural fluid frequently was infected with the same organism as was the abscess. Pancreatic insufficiency or diabetes mellitus did not develop in any of the patients. All of the deaths were due to generalized sepsis. The treatment of pancreatic abscess is surgical drainage preferably from an anterior approach. Delay in operation led to further complications and mortality. Antibiotics should be used, but drugs alone did not halt the course of any of the abscesses. Meticulous attention to the wound is essential. Adequate nutrition must be maintained.

**7195** **ACID BASE CHANGES DUE TO SECRETIN ADMINISTRATION IN NORMAL PATIENTS AND IN PATIENTS WITH PANCREATIC DISEASE.** *(E.)* Anderton, J. L. (Royal Infirm., Edinburgh, Scotland), N. D. C. Finlayson, J. Nimmo, A. F. Smith and D. J. C. Shearman. *Scand J Gastroent* 4(4):335-339, 1969.

The fall in blood base occurring after the administration of secretin ($3\mu$/kg) and the aspiration of duodenal contents was assessed in 7 normal patients and in 21 patients with chronic pancreatitis. In contrast to normal patients, those with chronic pancreatitis showed only a small fall or no fall in blood base level. There was no correlation between the amount of bicarbonate as determined by aspiration and that calculated from the blood base change. In 3 normal patients the magnitude of the renal compensatory mechanism in the post-secretin hr was found to be insignificant.

**7196** **A REVIEW OF CARCINOMA OF THE PANCREAS IN BATON ROUGE.** *(E.)* Laville, L. P. Jr. (Baton Rouge Gen. Hosp., La.). *J Louisiana Med Soc* 121(7):211-215, 1969.

A report is made, together with a review of the literature, of 111 cases of carcinoma of the pancreas treated in Baton Rouge, Louisiana, between 1955 and 1967. Bypass procedures were performed on 49 patients: cholecystojejunostomies on 44 and choledochojejunostomies on 5. The average survival time for the post-cholecystojejunostomy patients was 9.8 months and for the post-choledochojejunostomy patients 4.0 months. One of the post-cholecystojejunostomy patients survived 33 months. Pancreatoduodenectomy was felt to be suitable for 11 patients (10%). The operative mortality was 27%. Six patients survived (14-60 months) and are presently free of known disease.

**7197** **OUR EXPERIENCE IN PRESENT DAY RADIOLOGICAL TECHNIQUES IN PANCREATIC DISEASES.** *(Fr.)* Mallet-Guy, P. (Fac. Med., Lyon, France), P. Jacquemet, J. Murat and M. Ejazi. *Ann Radiol (Paris)* 11(11/12):857-863, 1968.

Celiac and superior mesenteric arteriography in 10 cases, all surgically confirmed as pancreatitis, was positive in 3 cases only. In relation to the risk of this diagnostic method, in 86 cases 1 neurologic accident and 1 local accident were observed, and both regressed. Intravenous cholangiography showed positive signs of choledochal compression in 3-5% of the cases of pancreatitis depending on the degree of development of the cancer. The pneumostratigraphy, less used, in 22 instances gave positive findings in 24 patients with pancreatitis; 3 times in cephalic lesions; and 18 times in 20 diffuse pancreatitis. Hypotonic duodenography was accurate in 91% in the diagnosis of pancreatitis, without any accidents. In the study of the cancer of the pancreas by the same technique, among 37 observations 33 were positive; in 17 tumors of the ampulla of Vater 15 were diagnosed.

**7198** **PANCREATIC SCINTIGRAPHY WITH $^{75}$Se-SELENOMETHIONINE.** *(Fr.)* Piret, L. (Ctr. Nuclear Med., U. Louvain, Belgium), C. Beckers and M. de Visscher. *Rev Med Liege* 23(Suppl. 1):106-111, 1968.

The results obtained in 120 subjects using scintillation scanning with radioselenomethionine ($^{75}$Se) for the diagnosis of pancreatic diseases are reported. The patients were injected i.v. with 3 $\mu$C/kg of $^{75}$Se and given 15 mg probanthine p.o. In 35 normal subjects 5 pathologic scintigrams were observed: no pancreatic alterations were shown in these cases by explorative laparotomy or autopsy, or by clinical, biological and radiological examinations. In 14 pancreatic cancers, 5 of them associated with jaundice, and 4 with radiological anomalies of intestinal transit, the pancreatograms were always pathologic. In 6 ulcerous or gastrectomized patients and in 13 cases of pancreatitis (4 with acute hemorrhagic pancreatitis; 3 with pancreatic calcification; 6 with chronic pancreatitis verified by laparotomy) the pancreatograms were always pathologic. In 1 case of pancreatic cyst the pancreatogram was abnormal. In 1 patient with insulinoma, scintigraphy, on the contrary, was normal, the tumor being 2.5 g only. Among 15 cases of vesicular lithiasis or cholecystectomized patients, a pancreatic alteration was observed 6 times. In the entire series of 120, 44 were normal, 64 were pathologic and 12 were technically unsatisfactory.

**7199** **TRYOSINE IN FIBROCYSTIC DISEASE.** *(E.)* Zack, P. (Dept. Pediat., U. British Columbia, Vancouver, Canada), D. A. Applegarth and S. Israels. *J Pediat* 72(5):692-693, 1968.

**7200** **TESTING OF EXOCRINE FUNCTION OF PANCREAS IN DIABETES MELLITUS BY USE OF $^{75}$Se-METHIONINE AND OF SECRETIN.** *(E.)* Lähdevirta, J. (Cent. Hosp., Savonlinna, Finland). *Acta Med Scand* 182(3):345-351, 1967.

## PANCREAS

7201 **A CASE OF CURED PANCREATIC NECROSIS IN THE COURSE OF VIRAL HEPATITIS.** *(Pol.)* Walter, Z. (Provincial Pediat. Hosp., Poznan, Poland) and L. Leja. *Przegl Lek* 23(12):854-855, 1967.

7202 **OBSERVATIONS ON THE CLINICAL FEATURES OF CARCINOMA OF THE PANCREAS.** *(Rev.)* *(E.)* Rash, R. M. (Crumpsall Hosp., Manchester, England). *Amer J Gastroent* 51(3):235-245, 1969.

7203 **TREATMENT OF PANCREAS TRAUMA.** *(Fl.)* Noyez, D. (H. Hartkliniek, Roeselare, Belgium) and J. Braeckman. *T Gastroent* 12(2):147-158, 1969.

7204 **DIAGNOSIS OF PANCREATIC DISEASES WITH THE AID OF SPLENOPORTOGRAPHY.** *(Ger.)* Braun, H. (Med. U. Clin. Würzburg, Germany), W. Schmitt and L. Wannagat. *Roentgenblat* 22(7):359-363, 1969.

7205 **PANCREATIC CYSTADENOMA IN CHILDHOOD. REPORT OF A CASE.** *(E.)* Gundersen, A. E. (La Crosse Lutheran Hosp., Wis.) and J. F. Janis. *J Pediat Surg* 4(4):478-481, 1969.

7206 **PANCREATIC HETEROTOPIA. [CASE REPORT]** *(E.)* Stenseth, J. H. (Rochester, Minn.). *Med Bull US Army Europ* 26(7):219-221, 1969.

7207 **THE MORPHOLOGY AND DIAGNOSIS OF PANCREOLITHIASIS.** *(Rus.)* Likhachev, Iu. P. (N. N. Burdenko Gen. Milit. Hosp., Moscow, USSR) and P. N. Sementsov. *Klin Med (Moskva)* 45(10):103-108, 1967.

7208 **LE PANCRÉAS EXOCRINE (THE EXOCRINE PANCREAS).** *(Fr.)* Ribet, A. and J. P. Pascal. Paris, Masson et Cie, 1968. 252 pp.

7209 **ANGIOGRAPHIC STUDY OF CARCINOMA OF THE PANCREAS. REPORT OF A CASE.** *(E.)* Fu, W. R. (George Washington U. Sch. Med., Washington, D. C.), L. W. Stanton and R. A. Nicklas. *Med Ann DC* 37(8): 418-420, 1968.

7210 **CYSTADENOMA AND CYSTADENOCARCINOMA OF THE PANCREAS.** *(Rev.)(Fr.)* Hillemand, B. (Rouen, France). *Sem Hop (Paris)* 43(47):2957-2960, 1967.

7211 **PSEUDO-CYSTS OF THE PANCREAS.** *(Rev.)* *(E.)* Venkataraman, M. S. (Govt. Gen. Hosp., Madras, India). *Indian J Surg* 29(8):449-465, 1967.

7212 **A CASE OF CYSTADENOMA OF THE PANCREAS.** *(Fr.)* Soots, G. (Surg. Soc., Lille, France), J. M. Cassou and M. Leduc. *Lille Chir* 22(4/5):209-214, 1967.

See also: 6558,6739,6750,6761,6788,7087

## Pancreatitis

7213 **THE POSSIBLE ROLE OF PHOSPHOLIPASE A IN THE PATHOGENESIS OF ACUTE PANCREATITIS.** *(E.)* Schmidt, H. (Dept. Med., U. Göttingen, Germany) and W. Creutzfeldt. *Scand J Gastroent* 4(1):39-48, 1969.

The injection of a 2% lysolecithin soluble into the pancreatic duct of Sprague-Dawley rats was always followed by severe destruction of the pancreatic tissue. After 6 hr the organ was almost necrotic. In the abdominal cavity, there were numerous fat necroses. A mixture of phospholipase A and 0.4% Na-taurocholate injected into rat pancreas has the same necrotizing effect, evident in the pancreas in 1 hr. The injected phospholipase A splits the lecithin and the cephalin of the pancreatic tissue into their lysocompounds. The phospholipase A activity of the human pancreas is 10-30 times higher than that found in the pig, ox, or rat pancreas. Lecithin of bile is split into lysolecithin during incubation of mixtures of human bile and human pancreatic juice. Normal human pancreatic tissue has only a low content of lysolecithin. In the necrotic pancreatic tissue of 3 patients who died of acute pancreatitis, there was a reversal of the normal phospholipid spectrum. Lysolecithin was the main phospholipid fraction in all cases, while the lecithin and cephalin were markedly reduced. The intrapancreatic activation of phospholipase A may be an important factor in the pathogenesis of acute pancreatic necrosis.

7214 **CHRONIC PANCREATITIS: CLINICAL RECOGNITION AND MEDICAL TREATMENT.** *(E.)* Monroe, L. S. (Scripps Clin. Res. Found., La Jolla, Calif.). *Amer J Gastroent* 50(1):63-68, 1968.

7215 **A CLINICAL AND STATISTICAL ANALYSIS OF ACUTE PANCREATITIS.** *(It.)* Proscia, N. (Asti City Hosp., Italy) and F. Sorosio. *Minerva Chir* 23(4): 185-190, 1968.

7216 **THE EFFECT OF PANCREAS SECRETION IN BILIARY PANCREATITIS IN THE DOG.** *(Sp.)* Linares, C. A. (Ramos Mejía Hosp., Buenos Aires, Argentina) and C. J. L. Morel. *Rev Argent Cir* 13(1/3):11-14, 1967.

7217 **PANCREATIC NECROSIS AND RENAL FAILURE.** *(Pol.)* Penson, J. (2nd Clin. Intern. Dis., Gdansk, Poland), S. Horoszek-Maziarz, J. Muszkowska-Penson and J. Stolarczyk. *Pol Tyg Lek* 24(21):786-789, 1969.

7218 **SPLENIC HYPERTENSION IN PANCREATITIS. [CASE REPORT]** *(E.)* Looby, W. E. (Colorado State Hosp., Pueblo), J. R. Bennett and A. Rehman. *Rocky Mountain Med J* 66(8):29-32, 1969.

7219 **TRAUMATIC PANCREATITIS WITH PSEUDO-PANCREATIC CYST. [CASE REPORT]** *(E.)* Srivastava, S. K. (Clara Swain Hosp., Bareilly, Pakistan) and B. K. Masih. *J Christ Med Ass India* 44(4):204-206, 1969.

7220 **SERUM TRANSAMINASES IN ACUTE PANCREATITIS.** *(Rus.)* Lashchevker, V. M. (1st Odessa Munic. Clin. Hosp., USSR), P. I. Krimgol'd and L. D. Iakovenko. *Klin Khir (Kiev)* (3):30-32, 1968.

7221 **A METHOD FOR LOCAL HYPOTHERMIA IN THE PANCREAS DURING ACUTE PANCREATITIS.** *(Rus.)* Bluvberg, V. M. (Patrice Lumumba U. Natl. Friendship, Moscow, USSR) and R. A. Markosian. *Klin Khir (Kiev)* (3):28-30, 1968.

7222 **RADIO-INSULINEMIA IN CHRONIC PANCREATITIS.** *(Fr.)* Linquette, M. (Munic. Hosp., Lille, France) and J. C. Fourlinnie. *Rev Med Liege* 23(Suppl. 1):61-65, 1968.

7223 **EXPERIMENTELLE PANKREATITIS--PROTEOLYTISCHE, LIPOLYTISCHE UND BILIÄRE FORM (EXPERIMENTAL PANCREATITIS--PROTEOLYTIC, LIPOLYTIC AND BILIARY FORM).** *(Ger.)* Wanke, M. Stuttgart, Georg Thieme, 1968. 69 pp.

7224 **THE CONTRIBUTION OF METABOLIC CHANGES TO THE PATHOGENESIS OF PANCREATITIS.** *(E.)* Nagel, M. (Surg. Clin., U. Mainz, Germany). *German Med Monthly* 12(8):397-399, 1967.

7225 **ACUTE PANCREATITIS IN CHILDREN.** *(Pol.)* Rokosz, A. *Przegl Lek* 24(4):429-430, 1968.

# LIVER AND BILIARY TRACT
## GENERAL

7226 **THE STEATORRHOEA OF CHRONIC LIVER DISEASE WITHOUT JAUNDICE.** *(E.)* Walker, B. E. (Dept. Med. U. Leeds, England), J. Kelleher and M. S. Losowsky. *Scand J Gastroent* 4(4):341-344, 1969.

Measurements of fecal fat in a group of 19 patients with chronic liver disease (cirrhosis 13, chronic hepatitis 2, hemochromatosis 3, alcoholic liver disease without cirrhosis 1) showed that steatorrhea (fecal fat >6 g/day) was present in 8. The steatorrhea seems to be related to the severity of the liver dysfunction, and this may be related to abnormalities of bile salt production. All patients with steatorrhea had serum albumin levels of less than 3.5 g%. Steatorrhea did not appear to be related to portal hypertension. Steatorrhea should be considered in the explanation of the malnutrition occurring in patients with chronic liver disease.

7227 **VALUE OF POLAROGRAPHY IN THE DIAGNOSIS OF JAUNDICE.** *(Fr.)* Gavrila, I. (Clin. Infect. Dis. Cluj, Romania), M. Feticu, S. Mosoigo and D. Cirstina. *G Mal Infett* 21(1):29-37, 1969.

In 87 epidemic hepatitis cases, in 41 cholestatic and severe forms of epidemic hepatitis cases, in 15 benign obstructive jaundice cases, in 35 malignant obstructive jaundice cases, and in 30 normal subjects, 334 serum polarograms were performed by the Bridicka method. In the normal subjects the values ranged between 20-30 mm, with an average of 25.8 mm; in the epidemic hepatitis the values were always low (20.4 mm). In obstructive jaundice the values were high; in the benign cases they had an average of 31.8 mm; in the malignant cases 34 mm. No correlation was found between the values of the polarogram and those of bilirubin. It is concluded that polarography is a useful test for the differential diagnosis of jaundice, when the data obtained are interpreted in conjunction with the clinical data and other laboratory tests.

7228 **HEREDITARY HEPATIC PORPHYRIAS. GENE PENETRATION, DRUG SENSITIVITY AND SUBDIVISION IN THE LIGHT OF SYSTEMATIC FAMILY STUDIES.** *(E.)* With, T. K. (Svendborg County Hosp., Denmark). *Acta Med Scand* 186(1/2):117-124, 1969.

On the basis of systematic family investigations of Danish porphyria patients during 10 yr, gene penetration has been studied in different families. The possibility that gene penetration might vary was confirmed, as some families had many manifest cases and a high number of latent cases excreting high concentrations of metabolites, while others had only 1 manifest case and few latent excretors with low metabolite concentration. An intermediate status of different degrees also exists. The large families with acute porphyria in Northern Sweden and with variegate porphyria in South Africa constitute extremes, the most frequent finding in other countries being families with considerably less pronounced gene penetration. Observations further suggest that the sensitivity to drugs (e.g., barbiturates) as provocators of porphyric attacks varies with the gene penetration prevailing in the family; thus the risk of drug-provoked attacks seems to be much higher in Sweden and South Africa than in Denmark. Therefore an important point in prophylaxis of the porphyric attack is to study the family of every patient to get an impression of the gene penetration and drug sensitivity prevailing in that particular porphyric family.

7229 **COMBINED DIAGNOSTIC APPROACH OF HEPATIC SCANNING AND CELIAC ANGIOGRAPHY IN THE INVESTIGATION OF LIVER DISEASE.** *(E.)* Freeman, L. M. (Albert Einstein Coll. Med., Yeshiva U., New York, N. Y.), R. G. Bernstein, M. C. Katz, A. Derman and C. H. Meng. *J Nucl Med* 10(10):628-632, 1969.

Sixty patients ranging in age from 20 to 76 yr were studied with both hepatic scans and celiac angiograms. The types of liver problems evaluated included space-occupying processes, cirrhosis, trauma and extrinsic pressure deformities caused by disease in adjacent organs. Isotopic study preceded angiography in most. Liver scanning was performed with either $^{198}$Au (2 μCi/kg) or $^{99}$Tc-sulfur colloid (10-20 μCi/kg). Angiographic studies usually consisted of a flush aortogram followed by selective fluoroscopic celiac angiography with Conray 440. A space-occupying disease noted on scan was frequently identified by angiography and the risk or need for biopsy minimized. The angiogram was also able to separate cirrhosis from hepatoma when the scan was not diagnostic. The two diagnostic techniques were comparable in delineating the site of trauma within the liver. Angiography is necessary to rule out an extrinsic pressure deformity suggested by scan. Preoperative angiograms are of particular value in outlining the vascular architecture of the liver while the scan is a simple means of locating suitable biopsy sites and of following the course of disease.

7230 **RECENT EXPERIENCE IN THE SURGICAL TREATMENT OF NONNEOPLASTIC DISEASES OF THE HEPATIC AND COMMON BILE DUCTS.** *(It.)* Fogliati, A. E. (San Spirito Hosp. Casale Monferrato, Italy), S. Vernoni, D. Albano, D. Robotti, V. Testa, D. Deambrogio and D. Bottazzi. *Minerva Med* 60(29):1321-1331, 1969.

Forty-nine surgical cases (45 women, 4 men) of nonneoplastic diseases of the hepatic and common bile ducts included 34 cases of uncomplicated lithiasis, 8 cases of lithiasis associated with organic stenosis of Oddi's papilla, 4 cases of pure stenosis of Oddi's papilla and 3 cases of plastic surgery of the main bile duct. Systematic exploration of the peritoneal cavity in patients already cholecystectomized is recommended to detect other diseases which could stimulate or aggravate the biliary symptomatology. The best and safest method for removing calculi from the main biliary tract is lavage of the hepatic and common ducts under pressure. All surgical patients were subjected to cholangiography after surgery. This procedure serves to determine whether the hepatic and common bile ducts are free from calculi, to verify the existence and rapidity of bile flow into the duodenum, to test resumption of hepatic function (especially bile secretion) and to document the modification in form and possible reduction in caliber of the hepatic and common ducts.

7231 **COMPARATIVE STUDIES ON ADAPTIVE ENZYMES IN RAT LIVER. III. EFFECTS OF MALIGNANT TUMOR.** *(E.)* Terada, M. (Fac. Med., Kyoto U., Japan). *Jap Arch Intern Med* 15(11):381-389, 1969.

Enzymatic activities of alanine-α-ketoglutarate transaminase, threonine dehydrase, and tyrosine-α-ketoglutarate transaminase in rat livers bearing Walker carcinosarcoma 256 or AH-130 hepatoma were measured during the course of tumor growth. Alanine-α-ketoglutarate transaminase and threonine dehydrase activities were reduced during tumor growth, and the reduction in enzymatic activities was much more marked in the livers of rats bearing Walker carcinosarcoma 256 than those bearing AH-130 solid type hepatoma. The degree of reduction was not related to malignancy of the tumor implanted but appeared to be closely related to the size of the tumor. In contrast to these 2 enzymes, tyrosine-α-ketoglutarate transaminase activity in the liver of rats bearing either malignant tumor was altered in a biphasic pattern; in the initial stage of tumor growth, the enzymatic activity was decreased and then towards the terminal stage of tumor growth increased significantly. The later increase of tyrosine-α-ketoglutarate transaminase activity was more pronounced in the livers of rats bearing AH-130 solid type of hepatoma than those bearing Walker carcinosarcoma 256. The reduction of enzymatic activities of alanine-α-ketoglutarate transaminase and threonine dehydrase, and the initial decrease of tyrosine-α-ketoglutarate transaminase in the liver of rats bearing tumors probably reflect a reduced amino acid pool in the host animals. The later increase of tyrosine-α-ketoglutarate transaminase is due to hyperfunction of the adrenal cortex.

### 7232 EFFECTS OF CHLORPROMAZINE IN PATIENTS WITH HEPATIC DISEASE.

*(E.)* Read, A. E. (Dept. Med., U. Bristol, England), J. Laidlaw and C. F. McCarthy. *Brit Med J* 3(5669):497-499, 1969.

Twenty-three patients with biopsy-proven cirrhosis were extremely sensitive to chlorpromazine (1 mg/kg p.o.) as shown by slowing of the electroencephalograph (E.E.G.), which was particularly definite in those who had had hepatic encephalopathy. Patients showing the most definite E.E.G. changes were in general very sleepy and took some hours to recover after taking chlorpromazine. Arterial ammonia levels were unaffected by ingestion of the drug. Chlorpromazine (1 mg/kg) i.v. was cleared as rapidly in cirrhotics as in controls. Phenothiazine drugs should be used very cautiously in patients with alcoholic liver disease.

### 7233 ACTION OF PHYTOHEMAGGLUTININ ON LIVER CELLS OF LIVER PATIENTS IN *IN VITRO* CULTURES.

*(It.)* Capra Marzani, P. (Inst. Gen. Pathol. U. Pavia, Italy). *Minerva Med* 60(29):1316-1320, 1969.

The results of cultivating fragments of human liver tissue in the presence of phytohemagglutinin (10% solution) are described. In 11 cases of hepatic cirrhosis, 5 cases of chronic alcoholic hepatopathy, 3 cases of primary or metastatic hepatic neoplasia, and 1 case of chronic lymphatic leukemia, nucleoli appeared in a large number of hepatocytes as early as 24 hr after treatment. This rapid response to phytohemagglutinin was nearly equal in all cases observed and remained unchanged even after 48 and 72 hr. Nucleoli were very few in tissue which had just been withdrawn. Observations on normal liver tissue revealed a highly reduced response to phytohemagglutinin compared to that observed in the pathological cases; the phenomenon tended to weaken as early as the 48th hr. These results demonstrate that human liver cells have a hitherto unsuspected sensitivity to phytohemagglutinin.

### 7234 POSTULATED GASTRIC FACTOR ENHANCING IRON ABSORPTION IN HAEMOCHROMATOSIS.

*(E.)* Smith, P. M. (King's Coll. Hosp., London, England), F. Studley and R. Williams. *Brit J Haemat* 16(5):443-449, 1969.

A variety of everted gut sac techniques were used in 6-10 week old male Wistar rats to determine if there was a factor in the neutralized gastric juice of 11 patients with hemochromatosis and 6 patients with iron deficiency anemia which will potentiate iron absorption. No such effect was found and iron uptake by the sacs did not correlate with measurements of iron absorption in the patients with hemochromatosis using a whole body counter. Peak iron uptake was found to occur from between 12-24 cm from the rat pylorus, in the jejunum. Ascorbic acid enhanced iron transfer from the mucosal to the serosal surface but no evidence for an active transport system was found.

### 7235 HEPATIC PHLEBOGRAPHY IN LIVER AILMENTS.

*(E.)* Riquier, G. (Sch. Med., State U. Milan, Italy), D. Galmarini, P. G. Zanoli, L. R. Fassati and G. Trivellini. *S Afr Med J* 43(23):729-733, 1969.

A new method of catheterization and phlebography with blockade of the supra-hepatic veins was used on 615 patients including a variety of liver ailments (primary and metastatic malignancy, 123; cirrhosis, 195; parasitic cysts, 42; biliary cirrhosis, 5; biliary stagnation, 94; degenerative liver ailments, 65; portal thrombosis, 28; hepatic stagnation (Budd-Chiari syndrome) 7; normal liver 52, and other diagnoses, 4, most of which were of surgical interest. Tolerance was invariably good, and the procedure was easily performed. The method is indicated as a fundamental procedure for the correct assessment of both malignant and non-malignant liver-expansion processes; as a valuable tool for the early detection of cirrhotic-type liver ailments and for evaluating their stage of development; and as a source of basic anatomical and surgical data on the condition of the suprahepatic peduncle.

### 7236 NEW BIOCHEMICAL ASPECTS OF NON-HEMOLYTIC CONGENITAL JAUNDICE. CRIGLER AND NAJJAR'S SYNDROME.

*(Fr.)* Jansen, F. H. (St. Rafael Acad. Hosp., Louvain, Belgium), A. Devriendt, K. P. M. Heirwegh and J. de Groote. *Biol Gastroent* 2:201-204, 1968.

The possibility of hepatic conjugation was studied in a child with congenital nonhemolytic jaundice, which appeared 3 days after the birth. Crigler and Najjar's syndrome was diagnosed by exclusion, liver function tests being normal. An analysis of the metabolites excreted in the urine, after administration p.o. of sulfadimethoxine (SDM) showed, in a normal child of the same age and in the child with congenital jaundice, that SDM was excreted 14.4 and 18.7%, resp. as free SDM; 6.0 and 0%, resp. as $N_4$-glucuronide; 62.8 and 0%, resp. as $N_1$-glucuronide; 16.0 and 48.9%, resp. as $N_4$-acetyl; 0 and 11.0%, resp. as unidentifie metabolites, but conjugated to $N_4$; 0 and 21.4%, resp. as unidentified metabolites, and not conjugated to $N_4$. It seems that, the infant with nonhemolytic congenital jaundice could not conjugate sulfamides.

### 7237 SURGICAL EXCISIONS OF LIVER CARCINOM IN THE AFRICAN.

*(Fr.)* Gruet, M. (Principal

Hosp., Dakar, Senegal), B. Piquard, J. P. Dareys and A. Carayon. *Bull Soc Med Afr Noire Lang Franc* 13(3):604-609, 1968.

In the first case (male, 35 yr old), the tumor was completely limited to the left lobe of the liver. Lobectomy produced good results, and the patient was still alive after 2 yr. Another case (male, 1 yr old), with an epigastric tumor for 1 month, had a positive finding of $\alpha$-fetal protein test. Laparotomy showed 2 tumors in the left lobe with infiltrations in the parenchyma. The II and III segments were excised. Histologic study confirmed a malignant lesion (trabecular liver carcinoma). After 2 months the patient again presented with carcinoma now in the right lobe, and the $\alpha$-fetal protein, which after surgery had decreased, was again elevated. (No result is given). In another case (male, 47 yr old), biopsy showed a massive liver carcinoma. The $\alpha$-fetal protein was positive. A laparotomy showed ascites (5 liters). After resection, a voluminous metastatic adenopathy near the celiac trunk at the base of the hepatic pedicle was found. Transplantation of the liver would be of more interest clinically than transplantation of the heart.

**7238 VALUE OF THE STUDY OF SERUM ALPHA 1-FETAL-PROTEIN IN THE DIAGNOSIS OF PRIMARY LIVER CANCER.** *(Fr.)* Masseyeff, R. (Fac. Med. Pharm., Dakar, Senegal), M. Sankalé, M. Onde, A. Menye, R. Camain, C. Quénum, L. Maydat, P. Mattern, J. P. Ancelle and L. Leblanc. *Bull Soc Med Afr Noire Lang Franc* 13(3):537-548, 1968.

Serum $\alpha_1$-feto protein ($\alpha$FP) was studied in 194 patients (166 males and 28 females; 11-88 yr old) with primary liver cancer, in 3202 patients with diseases other than primary liver cancer (including 123 with cancer of various localizations; 146 liver cirrhosis; 17 viral hepatitis), and in 2025 normal subjects. Among the patients with primary liver cancer $\alpha$FP was present in 72 of 95 cases histologically confirmed, and in 78 of 99 cases clinically diagnosed. Studies in normal subjects and in patients with different diseases never showed the presence of $\alpha$FP. A study of $\alpha$FP in 17 newborns showed its presence in all. The absence of $\alpha$FP in 25% of the patients with primary liver cancer was not connected with any clinical, biochemical or pathological feature in the patients.

**7239 ARTERIOGRAPHY IN PRIMARY LIVER TUMORS.** *(Fr.)* Bennet, J. (St. Antoine Hosp., Paris, France) and R. Bigot. *Ann Radiol (Paris)* 11(11/12):837-845, 1968.

Studies of 33 cases of hepatoma, with 30 selective explorations of the celiac trunk, 1 selective exploration of the superior mesentery alone, and 2 aortographies, are presented. Histological diagnosis was made in 23 only, identifying 18 hepatomas, 4 cholangiomas, and 1 fibrosarcoma. In 5 cases the hepatoma developed from a cirrhosis. The clinical diagnosis was made in 10 cases of the 33; arteriography was necessary in the other 22; 1 case was not diagnosed. Arteriography identified primary malignant tumors 30 times, and primary or secondary malignant tumors, and showed 9 operative contraindications: 2 cases of diffuse hepatoma, 6 cases of metastases to the opposite lobe, 1 case of extension of the tumor, which was also connected in its inferior part with the superior mesenteric artery. The tumors were localized 21 times on the right lobe, 7 times on the left lobe, 3 times on the quadrate lobe, and diffuse in 2 cases. Angiography was found very useful in the control of operated cases and in the management of liver tumors.

**7240 SURGICAL LIVER ABSCESSES. 16 CASES.** *(Fr.)* Weber, M. (Beaujon Hosp., Clichy, France), J. N. Maillard and J. L. Lortat-Jacob. *Rev Int Hepat* 18(1): 55-74, 1968.

Case reports for 16 patients with hepatic abscesses showed that in only 8 were the abscesses diagnosed before surgery. The pus was sterile in 7 and in the others Staphylococcus, Klebsiella and Amebas were found. The most common clinical picture was a large painful liver. Laboratory examinations were not pathognomonic in any case: hyperleukocytosis was not constant, the erythrosedimentation rate was increased; serum protein electrophoresis showed hyper-alpha-2-globulinemia. X-ray examinations showed elevation of the right diaphgram or its deformation in 10 of 16 cases. Splenoportography in 2 cases and scintillation scanning in 9 were useful in diagnosis. Laparoscopy, performed in 4, failed once, diagnosing a metastatic liver. Medical treatment was prescribed whenever there was the possibility of amebiasis. The surgical technique was drainage of the abscesses, using Pezzer or Kehr's drains. In 4 cases fistulography was performed to determine when the drainage could be stopped.

**7241 COMPARATIVE VALUE OF THE DIFFERENT METHODS OF EXPLORATION IN CASES OF SUPPURATION AND NECROSIS OF THE LIVER.** *(Fr.)* Monges, H. (Digestive Dis. Clin., C.H.U., Marseille, France), J. Delmont, P. Jouve, J. F. Huguet and A. Hancy. *Ann Radiol (Paris)* 11(11/12):819-822, 1968.

In 27 patients with abscesses of the liver, the frequency of unusual forms made differential diagnosis difficult. Peritoneoscopy and needle biopsy were not useful. Scintigraphy was the best, harmless and allowing localization of multiple lesions. Performed in 27 cases, it was negative in 2 only, because of the central location of the abscesses. In these cases splenoportography and selective angiography were useful, but the procedures are more dangerous to the patient.

**7242 THE CYTOMETRIC DETERMINATION OF THE DNA CONTENT OF LIVER CELLS DURING THE DEVELOPMENT OF MALIGNANCY.** *(Rus.)* Umanskii, Iu. A. (Kiev Sci. Res. Inst. Exp. Clin. Oncol., USSR), K. A. Gudim-Levkovich, V. G. Pinchuk, L. A. Zotikov and L. P. Lysiuk. *Vop Onkol* 13(10):103-108, 1967.

Hepatomas were induced in Wistar rats, fed a protein-deficient diet for 2 weeks, by giving them 12 mg/day of p-dimethylaminoazobenzene p.o. with their food. Cytometric studies of the nuclei of liver cells 3 days after rats started ingesting the carcinogen showed that the DNA content of the nuclei was 16% higher than that of the controls and the number of octaploid nuclei was 43% higher. After 2 months of ingesting the carcinogen the DNA content of the nuclei was 52% higher than that of the controls and 10% of the cells were 16-ploid. The increased DNA content ensured an increase in protein synthesis while changes in the genetic apparatus of the cells resulted in changes in protein metabolism. Hepatomas finally appeared after 4 months. The DNA content of their nuclei was 71% higher than the controls but varied greatly from one cell to another. All of the increases in cellular DNA are attributed to polyploidy.

## LIVER AND BILIARY TRACT

### 7243 M-COMPONENTS IN PATIENTS WITH CHRONIC LIVER DISEASE.

*(E.)* Ellman, L. L. (Harvard Med. Sch., Boston, Mass.), W. N. Pachas, R. S. Pinals and K. J. Bloch. *Gastroenterology* 57(2):138-142, 1969.

M-components were detected in serum from 3 of 367 patients with chronic liver disease during routine laboratory tests. In these 3 patients there was an etiological explanation for the liver disease in only 1 who had a long history of alcoholism. To find additional M-components, serum from another 116 patients (92 Laennec's cirrhosis, 11 postnecrotic cirrhosis, 4 biliary cirrhosis, 5 lupoid hepatitis, and 4 chronic liver disease of unknown etiology) was tested by agarose gel electrophoresis. None were found. Although reports on nonmyelomatous M-components frequently include patients with chronic liver disease, the present series, as well as 1 other, revealed a low incidence of M-components among such patients. In view of the relatively high incidence of M-components among apparently healthy older individuals reported by other investigators, it is suggested that the M-components found in our 3 patients (ages 67, 70, and 76 yr) may be related primarily to some unknown, age-related process, rather than to chronic liver disease.

### 7244 AUSTRALIA-SH ANTIGEN IN HEPATITIS PATIENTS IN LONDON.

*(E.)* Cossart, Y. (Virus Reference Lab., London, England), P. E. Taylor, J. Vahrman and A. J. Zuckerman. *Brit Med J* 3(5673):755-756, 1969.

Australia-SH antigen was found in 11 of 27 sera (40%) obtained from patients with acute viral hepatitis soon after their admission to hospital. Six of 11 positive sera were collected within the first 12 days of illness; the remaining 5 were collected between the 13th and 30th days. The antigen was detected by immunodiffusion in agarose gel, 5 different indicator sera containing Australia-SH antibodies being used. The specificity of these sera was found to be very similar. All of the patients' sera were examined independently by 2 laboratories. The results obtained by the laboratories were in close agreement, though the techniques differed in detail.

### 7245 DETECTION OF HEPATIC NEOPLASM. HEPATIC SCANNING COMBINED WITH LIVER-FUNCTION STUDIES.

*(E.)* Wilson, F. E. (Fitzsimmons Gen. Hosp., Denver, Colo.), D. F. Preston and E. L. Overholt. *JAMA* 209(5):676-679, 1969.

To evaluate 2 methods for detecting hepatic neoplasms, hepatic scans with $^{198}$Au and serum alkaline phosphatase determinations were done in 69 patients. The hepatic scans were 78% accurate (in 14 of 18 patients) and the phosphatase determinations were 80% accurate (in 14 of 15) in detecting hepatic neoplasms; together the tests were 93% accurate. When results of both were normal, hepatic neoplasm was present in 4%. The likelihood of hepatic neoplasm in the presence of a positive scan and elevated alkaline phosphatase level was 92%. No liver function studies eliminated false-negative scans. The presence of space-occupying lesions without associated increased hepatic uptake was effective in differentiating hepatic neoplasm from cirrhosis. In 11 patients with lymphoma, increased splenic uptake of $^{198}$Au occurred in 7 patients. In some instances, this may have been due to hepatic involvement with lymphoma, and in others, to increased phagocytic activity of the reticuloendothelial system of the spleen with or without splenomegaly.

### 7246 BEHAVIOR OF DESOXYRIBONUCLEIC ACID (DNA) AND OF NUCLEAR VOLUME OF HUMAN HEPATOCYTES IN ICTEROGENIC ACUTE HEPATITIS.

*(It.)* Bacci, G. (Inst. Clin. Med., U. Bologna, Italy), A. M. Casali, R. F. Guaragna and G. Cavalli. *Fegato* 15(1):41-58, 1969.

In 5 cases of acute hepatitis (females, 19-54 yr old) and in 2 normal subjects, liver needle biopsies were taken and determinations made of nuclear DNA by the histophotometric method, mitotic activity and the percentage of polynuclear cells. In hepatitis 2 categories of nuclei were well defined. Class A had a lower nuclear content of DNA and was more numerous than class B. The average nuclear content of DNA for class A was: in the 2 controls 1428 AU (arbitrary units) and 1462 AU and for acute hepatitis ranging between 1440-1731 AU. For class B 3571 AU and 3159 AU in the 2 controls; and in acute hepatitis between 2924 and 3200 AU. The percentage of mitosis was 0.04% in both the controls and in the hepatitis between 0.12 and 0.65%. The percentage of polynuclear cells was 1.5% and 2% in the controls, and in the hepatitis between 2.2-6.8%. The behavior of DNA and the nuclear volume were not correlated with the histologic evidence of liver damage, with the findings of serological tests, nor with the clinical picture.

### 7247 HEPATITIS-ASSOCIATED ANTIGEN IN CHRONIC LIVER DISEASE.

*(E.)* Fox, R. A. (Royal Free Hosp., London, England), S. P. Niazi and S. Sherlock. *Lancet* 2(7621):609-612, 1969.

Hepatitis-associated antigen was found in 5 of 17 patients with acute viral hepatitis. Also 218 patients with various forms of liver disease were studied and the antigen was not found in drug-associated jaundice (8 cases), chronic persistent hepatitis (19 cases), previous viral hepatitis (30 cases), active chronic hepatitis (32 cases), primary biliary cirrhosis (39 cases), or alcoholic liver disease (31 cases). It was found in 3 of 7 patients with prolonged viral hepatitis—a Greek patient with cryptogenic cirrhosis and 2 patients (1 a Greek) out of 33 with primary liver-cell carcinoma. Persistence of the hepatitis virus, as judged by a positive test for hepatitis-associated antigen, is probably not an important factor in the etiology of chronic liver disease in Great Britain.

### 7248 THE NATURAL HISTORY OF PRIMARY AND SECONDARY MALIGNANT TUMORS OF THE LIVER II. THE PROGNOSIS FOR PATIENTS WITH HEPATIC METASTASES FROM GASTRIC CARCINOMA VERIFIED BY LAPAROTOMY AND POSTMORTEM EXAMINATION.

*(E.)* Bengmark, S. (Sahlgren Hosp., Gothenburg, Sweden) and Lo. Hafstrom. *Digestion* 2(3):179-186, 1969.

Of 191 patients (115 male, 75 female) with gastric carcinoma, all except 19 (90%) had a laparotomy. The mean age of the 172 laparotomized patients was 71.6 yr (range 32-91) and 148 of them were dead at the time of the retrospective study (20 months after the last patient's operation). Of these, 128 had a postmortem examination. Of the 172 operated patients, 23 were proved to have liver metastases at operation and at autopsy. Mean survival time in this group was 6 months. The survival rate for patients over 70 yr of age was shorter (4.4 months for those over 70 vs 7.8 months for those under 70) and for those having extensive tumor growth in the liver. The treatment of the stomach cancer did not seem to influence survival. The risk of incorrect diagnosis of liver metastases from gastric carcinoma is approximately 5-10%. Alkaline phosphatases and bilirubin were unreliable for preoperative diagnosis of stomach metastases in the liver.

**7249 INTRANUCLEAR AND INTRANUCLEOLAR TUBULAR STRUCTURES IN NOVIKOFF HEPATOMA CELLS.** *(E.)* Babai, F. (Fac. Med., U. Montreal, Canada), G. Tremblay and A. Dumont. *J Ultrastruct Res* 28(1/2):125-130, 1969.

Electron microscopy studies on Novikoff hepatoma cells in male Sprague-Dawley rats (180-250 g) revealed tubular structures in the nuclei lined by a single membrane and previously undescribed canalicular structures within the nucleolus. Within the tubular structure a finely granular material could be seen. These structures may form a possibly direct tubular system between the nucleolus and the perinuclear cisterna. Other inclusions of the nuclear envelope are lined by a double membrane and contain easily recognizable cytoplasmic organelles.

**7250 MASSIVE HEPATIC RESECTION IN THE TREATMENT OF SEVERE LIVER TRAUMA.** *(E.)* Ackroyd, F. W. (Massachusetts Gen. Hosp., Boston), J. Pollard and W. V. McDermott. *Amer J Surg* 117(4):442-448, 1969.

Of 23 patients with severe liver damage from penetrating or blunt trauma 5 were treated with suture and packing and 4 died. Only 1 of 16 treated with excisional therapy died. Extensive parenchymal destruction should be resected along anatomic planes for control of hemorrhage and limitation of post-traumatic necrosis, bile leakage, and abscess formation. Minor liver injuries should be treated by ligation and suture reconstruction without wide resection. Preoperative angiography proved helpful in defining the extent of injury. Operative cholangiography or injection of dye into the common duct to check completeness of bile duct ligation in the parenchymal portal triads greatly reduced postoperative problems of subphrenic bile collections and sepsis. Intravenous supplements of glucose for the first 24 hr and albumin for 7-10 days are essential until the residual liver tissue can keep pace with convalescent requirements. The use of T tube decompression of the common duct is useful and may offer protection from parenchymal bile leakage unless contraindicated by a duct of small caliber. Generous use of drains and sumps to remove subphrenic collections of bile, plasma, and blood markedly reduced postoperative morbidity.

**7251 CYTOMEGALOVIRUS INFECTION IN CHRONIC LIVER DISEASE.** *(E.)* Toghill, P. J. (King's Coll. Hosp. Med. Sch., London, England), R. Williams and H. Stern. *Gastroenterology* 56(5):936-937, 1969.

No evidence of active cytomegalovirus infection was found in a urine and blood survey of 70 adult patients with histologically proven chronic liver disease of varying types. The diagnosis included alcoholic cirrhosis (17), cryptogenic cirrhosis (10), primary biliary cirrhosis (5), active chronic hepatitis (12), hemochromatosis (12), drug jaundice (8), secondary biliary cirrhosis (1), hepatic sarcoidosis and cirrhosis (1), and congenital hepatic fibrosis (1). Thirty-eight (54%) had complement-fixing antibodies to a titer of 8 or over. The titers extended over a wide range up to 512 and were similar to those in a normal apparently healthy population. In patients with cryptogenic cirrhosis and chronic active hepatitis antibody incidence and levels did not differ appreciatively from those with other chronic liver diseases. Urine was examined for virus in all 70 patients and repeated examinations were made of patients with titers of 128 or more. No virus excretion was detected in the entire series.

**7252 ENZYMATIC STUDY OF ACUTE ANICTERIC HEPATITIS IN CROSTI-GIANNOTTI'S DISEASE.** *(It.)* Rezzonico, A. (Varese Hosp., Saronno, Italy), C. Bianchi, S. Repetto and N. Gervasini. *Minerva Med* 60(51):2546-2549, 1969.

SGPT, SGOT, glucose-6-phosphatase (G-6-P), alkaline phosphatase and alcolase activities were determined in 11 patients with Crosti-Giannotti's disease (infantile papular acrodermatitis) and 12 patients with acute icterogenic hepatitis. SGOT and SGPT activities were found to be significantly elevated in subjects affected with infantile papular acrodermatitis in the initial phase of the disease, reaching levels as high as 840 Wroblewsk Units (WU) and 680 WU, resp. Aldolase activity was increased up to 90 milliunits; alkaline phosphatase reached maximal levels of 19 King-Armstrong Units (KAU), G-6-P activity was significantly increased compared to normal values. Similar enzymatic changes were observed in cases of acute icterogenic hepatitis; maximum values were 875 WU for SGOT, 970 WU for SGPT, 0.66 U for G-6-P, 152 KAU for alkaline phosphatase and 72 milliunits for aldolase. These observations indicate the hepatic cellular damage in Crosti-Giannotti's disease.

**7253 HEXOKINASE ISOZYME PATTERNS OF EXPERIMENTAL HEPATOMAS OF RATS.** *(E.)* Sato, S. (Natl. Cancer Ctr. Res. Inst., Tokyo, Japan), T. Matsushima and T. Sugimura. *Cancer Res* 29(7):1437-1446, 1969.

A new, rapid, and reproducible method for electrophoretic separation of hexokinase isozymes in rat tissues, using cellulose acetate membrane, was used to study hexokinase isoenzyme patterns. In normal Donryu rat liver, the hexokinase pattern was identical with that obtained on starch gel by previous workers. There were Types I, II, III, and IV hexokinases, in order of increasing mobility, from the origin to the anode. Experimental Morris hepatomas, as a slowly growing and less deviated hepatoma group, transplanted i.m. in Buffalo rats, showed a relatively predominant Type II hexokinase in addition to Types I and III, and also a faint Type IV band. Experimental Yoshida ascites hepatomas, as a rapidly growing and highly deviated group, transplanted i.p. in Donryu rats, were characterized by only Type I and marked Type II hexokinase and by the absence of Types III and IV. Yoshida sarcoma showed a similar hexokinase pattern to that of Yoshida ascites hepatomas. A slowly growing substrain of Yoshida sarcoma, LY 5, had also Type III and IV hexokinases, resembling Morris hepatomas. It appears that the genes for Types III and IV hexokinase isozymes were not deleted, but their expressions were blocked in the original Yoshida sarcoma. The regenerating liver pattern was analogous to Morris hepatomas. In fetal liver, Type II was dominant, in addition to Types I, III, and weak IV. The possibility still remains that the predominance of Type II hexokinase might be merely a reflection of the rapid growth of cells.

7254 **DATA ON THE HERD IMMUNITY LEVEL OF HEPATITIS IN HUNGARY.** *(E.)* Solt, K. (Natl. Inst. Publ. Hlth., Budapest, Hungary). *J Hyg Epidem (Praha)* 13(1):35-42, 1969.

During the period 1950-1964 the morbidity curve of hepatitis in Hungary did not show any marked cyclic fluctuations. There were 2107 cases of hepatitis/100,000. The morbidity curve in Budapest reached its peak in 1956, has been decreasing since then, and has been below the national average since 1961. The morbidity curves in the individual territorial units in a considerable part of the country show the process of formation of a herd immunity level. This is also shown by the morbidity curve of subjects under 40 yr of age. During the 15 yr about 25% of the population, and about half of the children who reached the age of 14 yr in 1964, had had hepatitis in a typical, atypical, or inapparent form. Hepatitis spread from the west to the east, from towns to villages. The movement of the epidemic inside the country and the phenomena showing the process of formation of herd immunity level confirm earlier ideas that in Hungary hepatitis is spread primarily by the enteric route due to ordinary contacts in life.

7255 **EXPERIMENTAL BACILLARY HEMOGLOBINURIA II. PATHOGENESIS OF THE HEPATIC LESION IN THE RABBIT.** *(E.)* van Kampen, K. R. (Sch. Vet. Med. U. California, Davis) and P. C. Kennedy. *Path Vet (Basel)* 6(1):59-75, 1969.

Liver biopsy in 6 female, New Zealand rabbits (2 kg) was found to have disrupted hepatic vasculature and damaged the adjacent parenchyma during the 10 hr period in which the animals were observed. Seven others were inoculated i.v. with *Clostridium hemolyticum* and after 5 days liver biopsies were performed. Bacillary hemoglobinuria had developed by 8 hr in the survivors and by 10 hr there was severe dyspnea. Postmortem examination revealed ecchymoses in the diaphragm and stomach with dark red bands in the sectioned kidney. The damaged site of the liver biopsies progressed during the 10 hr to a complete destruction of the lobular pattern of the parenchyma and an expansion of the lesion. Massive necrosis had taken place and there were intravascular thrombi and gas bubbles. Varying degrees of pneumonia were present in the animals. Myocardial damage and microhemorrhages in the parenchyma of the brain along with some necrosis of the vasculature were observed. Three additional rabbits inoculated 1 hr after biopsy succumbed to bacillary hemoglobinuria, while 3 others inoculated 24 hr after biopsy were unaffected in spite of isolation of *C. hemolyticum* from their livers. At 6 days a normal healing process was noted in the latter animals.

7256 **SIGNIFICANCE OF DETERMINING SERUM GLUTAMIC-DEHYDROGENASE ACTIVITIES FOR THE DIFFERENTIAL DIAGNOSIS OF ICTEROGENIC HEPATOPATHIES.** *(It.)* Ruggiero, G. (Infect. Dis. Clin., U. Naples, Italy), E. Filosa and L. Cacciatore. *Fegato* 15(1):59-72, 1969.

SGOT, SGPT and LDH activities were determined in 34 patients with viral hepatitis and in 24 patients with obstructive jaundice (all over 20 yr of age). Analysis of the average values showed that SGOT (522 ± 365 IU and 71.79 ± 51.27 IU for both patient groups, resp.) and SGPT (804 ± 533 IU and 97.90 ± 111.54 IU for both patients groups, resp.) are discriminative variables; in contrast, LDH activity (0.91 ± 0.44 IU and 10.19 ± 10.22 IU for both patient groups, resp.) is regarded as a nondiscriminative variable. The values of the ($\Sigma$ GOT + GPT)/LDH ratio and the [(LDH) (10)]/GPT ratio were calculated for viral hepatitis (181.92 ± 109.04 IU and 0.130 ± 0.087 IU, resp.) and obstructive jaundice (68.76 ± 124.69 IU and 0.880 ± 0.737 IU, resp.). The difference is due solely to the discriminative variables SGOT and SGPT. The distributive characteristics of SGOT, SGPT and LDH activity were also studied in both patient groups. LDH activity is useful only for diagnosing hepatopathy and not for differential diagnosis between viral hepatitis and obstructive jaundice.

7257 **IMMUNOGLOBULIN BEHAVIOR IN ACUTE AND PROGRESSIVE HEPATITIS AND IN POSTNECROTIC AND ALCOHOLIC CIRRHOSIS.** *(It.)* Dioguardi, N. (Inst. Med. Symptomatology, U. Milan, Italy) and C. Vergani. *Minerva Med* 60(43):2141-2150, 1969.

Using radial immunodiffusion on acetylcellulose, serum immunoglobulins were determined in 10 patients with acute hepatitis, 12 patients with progressive hepatitis, 3 with postnecrotic, and 36 with alcoholic cirrhosis. In the course of acute hepatitis an initial increase in IgM, maintained for more than 4 weeks in some, was observed; this was accompanied by a later, more gradual increase in IgG levels. In progressive hepatitis and post-hepatitic cirrhosis the serum IgM levels remained high so the IgM/IgA ratio was greater than one. In alcoholic cirrohosis IgA values in particular were increased, resulting in an IgM/IgA ratio less than one. No correspondence between the serum enzyme and Ig levels could be shown.

7258 **THE PRESENT STATUS OF CORTICOSTEROID THERAPY IN LIVER DISEASES.** *(Rev.)(E.)* Tygstrup, N. (U. Hosp. Copenhagen, Denmark). *Scand J Gastroent* 4(5):393-395, 1969.

7259 **SPONTANEOUS TUMOURS ARISING IN LIVERS OF CBA/H-T$_6$T$_6$ MICE AND THEIR ASSOCIATION WITH A LATENT HEPATOTROPHIC VIRUS.** *(E.)* Helyer, B. J. (U. Otago Med. Sch., New Zealand). *Proc U Otago Med Sch* 47(2):50-51, 1969.

7260 **SPONTANEOUS TUMOURS ARISING IN LIVERS OF CBA/H-T$_6$T$_6$ MICE AND THEIR PROPAGATION IN ANIMALS OF THE SAME STRAIN.** *(E.)* Helyer, B. J. (U. Otago Med. Sch., New Zealand) and A. P. Tong. *Proc U Otago Med Sch* 47(2):51-53, 1969.

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7261 **TREATMENT OF CHRONIC HEPATITIS.** *(Cz.)* Holomáň, K. (Munic. Hosp., Bratislava, Czechoslovakia). *Cas Lek Cesk* 106(46):1224-1226, 1967.

7262 **PATHOLOGICAL ANATOMY OF CHRONIC HEPATITIS.** *(Cz.)* Tomík, F. (Inst. Publ. Hlth., Trnava, Czechoslovakia). *Cas Lek Cesk* 106(46):1220-1224, 1967

7263 **ETIOLOGICAL RELATIONS BETWEEN INFECTIOUS AND CHRONIC HEPATITIS.** *(Cz.)* Májek, Š. (Munic. Inst. Publ. Hlth., Bratislava, Czechoslovakia). *Cas Lek Cesk* 106(46):1227-1230, 1967.

7264 **CYSTATHIONINURIA IN GALACTOSEMIA AND CERTAIN TYPES OF LIVER DISEASE. [CASE REPORT]** *(E.)* Lieberman, E. (Child. Hosp., Los Angeles, Calif.), K. N. F. Shaw and G. N. Donnell. *Pediatrics* 40(5):828-833, 1967.

7265 **A CASE OF HEPATIC ASCARIASIS WITH LIVE PARASITES.** *(Fr.)* Borne, G. and A. Benkoula. *Bull Soc Path Exot* 60(3):292-296, 1967.

7266 **TREATMENT OF ACUTE INTERMITTENT PORPHYRIA.** *(Rus.)* Smirnov, Iu. K. (Inst. Poliomyelitis Viral Encephalitis, Moscow, USSR), L. I. Idel'son and L. I. Krasikova. *Klin Med (Moskva)* 45(10): 129-133, 1967.

7267 **ORAL ROENTGENOGRAPHIC CHANGES IN WILSON'S DISEASE.** *(E.)* Ogle, R. G. (Mayo Clin., Rochester, Minn.), J. A. Gibilisco, N. P. Goldstein and R. V. Randall. *J Lancet* 87(12):464-472, 1967.

7268 **PRIMARY HEPATIC CARCINOMA IN INFANTS. [CASE REPORT]** *(E.)* Mukherjee, S. (Chittaranjan Sisu Sadan, Calcutta, India) and H. S. Datta. *J Indian Med Ass* 49(7):341-342, 1967.

7269 **EXTRAHEPATIC PORTAL HYPERTENSION IN DOGS PRODUCED WITH BOEREMA'S INSTRUMENT FOR SLOW LIGATION.** *(E.)* Klopper, P. J. (Surg. Dept., U. Amsterdam, Netherlands) and J. A. C. Klompenhouwer. *Arch Chir Neerl* 19(2):127-138, 1967.

7270 **NONHEMOLYTIC UNCONJUGATED HYPERBILIRUBINEMIA WITH HEPATIC GLUCURONYL TRANSFERASE DEFICIENCY: A GENETIC STUDY IN FOUR GENERATIONS.** *(E.)* Sleisenger, M. H. (Cornell U. Med. Coll., New York), I. Kahn, H. Barniville, W. Rubin, J. Ben Ezzer and I. M. Arias. *Trans Ass Amer Physicians* 80: 259-266, 1967.

7271 **SERUM TRANSAMINASES IN HEPATOPATHIES.** *(Por.)* Guimarães, R. X. (Paulista Med. Sch., São Paulo, Brazil), T. I. Pricoli, N. Salem and M. P. Vilela. *Hospital (Rio)* 72:831-839, 1967.

7272 **DIFFERENTIAL LABORATORY DIAGNOSIS IN JAUNDICE CONDITIONS.** *(It.)* Mazzarella, C. (United Hosp., Salerno, Italy). *Riforma Med* 82(17):461-466, 1968.

7273 **LOW EXCRETION OF FECAL BILE ACIDS IN A FAMILY WITH HYPERCHOLESTEROLEMIA.** *(E.)* Miettinen, T. A. (Dept. Med. Chem., U. Helsinki, Finland), R. Pelkonen, E. A. Nikkilä and Olli Heinonen. *Acta Med Scand* 182(5):645-650, 1967.

7274 **POST-TRANSFUSIONAL HEPATITIS. VALUE AND LIMITS OF SOME METHODS FOR THE DISCOVERY OF DOUBTFUL DONORS.** *(It.)* Monti, G. (Inst. Special Med. Pathol. Clin. Methodol., U. Padua, Italy), T. Craglietto, G. Scudeller and S. Pepi. *Riforma Med* 82(15): 397-400, 1968.

7275 **THE COMPARISON OF ELECTROPHORETIC CHARACTERISTICS OF BLOOD SERUM PROTEINS WITH IMMUNOLOGIC STATE OF THE ORGANISM IN EXPERIMENTAL HEPATOMAS.** *(Rus.)* Shevchenko, V. S. (Sci. Res. Inst. Oncol., USSR). *Vop Onkol* 14(2):59-63, 1968.

7276 **LIVER PELIOSIS. TWO *IN VIVO* STUDIES.** *(It.)* Comoli, G. (Gen. Hosp., Novara, Italy), S. Maduli and G. C. Allegra. *Riforma Med* 82(11):289-294, 1968.

7277 **HEPATIC COMA TREATMENT BY EXCHANGE TRANSFUSION. [CASE REPORT]** *(Por.)* Gelfand, M. L., L. Sussman, B. C. Caimol, C. Florita and F. Joson. *Resen Clinicocient* 37(7/8):183-186, 1968.

7278 **CIRCULATION IN LIVER DISEASE.** *(Fr.)* Halpern, B. (Broussais Hosp., Paris, France), G. Biozzi, C. Stiffel, N. Fouquin and B. Albot. *Rev Int Hepat* 18(2):411-426, 1968.

7279 **EXPERIMENTAL STUDIES ON HEPATIC COMA WITH SPECIAL REFERENCE TO METABOLISM IN DOGS WITH VARIOUS HEPATIC DISORDERS.** *(Jap.)* Kato, M. (Gifu U. Sch. Med., Japan). *Acta Sch Med Univ Gifu* 15(3):387-413, 1968.

7280 **MULTIPLE LIVER ABSCESSES CAUSED BY *KLEBSIELLA AEROGENES*. [CASE REPORT]** *(E.)* Talerman, A. (Dept. Pathol. Microbiol., U. West Indies, Jamaica), E. Finnie and J. A. Wontumi. *J Med Microbiol* 1(1):164-167, 1968.

7281 **PRELIMINARY INFORMATION REGARDING THE OCCURRENCE OF ETHER LINKED LIPIDS IN TUMORS INDUCED BY DIETHYLNITROSAMINE.** *(E.)* Clapp, N. K. (Biol. Div., Oak Ridge Natl. Lab., Tenn.) and F. Snyder. *Res Rept Med Div Oak Ridge Ass U* 107:185-186, 1968.

7282 **ENZYME DIAGNOSIS OF ICTERUS.** *(Ger.)* Schmidt, E. (Hannover, Germany) and F. W.

Schmidt. Pp. 309-312 in *Ikterus*. International Symposium 27-29. October 1967. Beck, K., Ed. New York, P. K. Schattauer Verlag, 1968. 492 pp.

7283 TREATMENT OF JAUNDICE OF IMMATURITY WITH CORTICOTROPHIN. A CONTROLLED TRIAL. *(E.)* Howie, R. N. (Postgrad. Sch. Obstet. Gynaecol. U. Auckland, New Zealand). *Aust Paediat J* 4(1):23-28, 1968.

7284 THE CLEAVAGE OF CHIMYL ALCOHOL BY HOMOGENATES OF RAT LIVERS AND MORRIS HEPATOMAS. *(E.)* Soodsma, J. F. (Oak Ridge Natl. Lab., Tenn.) and F. Snyder. *Res Rept Med Div Oak Ridge Ass U* 107:178-179, 1968.

7285 PEDIATRIC ASPECTS OF ORGANELLE PATHOLOGY OF THE LIVER. *(E.)* Popper, H. (Mt. Sinai Sch. Med., New York, N. Y.). *J Mount Sinai Hosp NY* 35(2):155-164, 1968.

7286 ENORMOUS HYDATID CYST OF THE LIVER DISCLOSING A CONGENITAL CARDIOPATHY POST-OPERATIVE RESULTS. *(Fr.)* Linquette, M., J. Vandecasteele, J. Swyngedauw, R. Mesmacque and J. P. Gasnault. *Lille Med* 13(5):563-567, 1968.

7287 LUPOID HEPATITIS AND STAGES OF BILIARY CIRRHOSIS. *(Ger.)* Doelle, W. (Med. U. Clin., Marburg, Germany). *Deutsch Med J* 20(16): 501-507, 1969.

7288 SUCCESSFUL OPERATION ON AN AMPUTATION NEUROMA OF THE BILIARY TRACT. *(Ger.)* Ichiba, S. (Surg. Clin., Tottori U., Japan) and M. Ikeda. *Yonago Acta Med* 12(3):213-216, 1969.

7289 GENERAL THERAPY OF CHRONIC HEPATITIS. *(Ger.)* Henning, H. (Foehrenkamp Santa, Moelln, Germany). *Deutsch Med J* 20(16):518-521, 1969.

7290 IMMUNOLOGY OF CHRONIC LIVER INFLAMMATORY DISEASES. *(Ger.)* Vorlaender, K. O. (Luisen Hosp., Aachen, Germany). *Deutsch Med J* 20(16):530-536, 1969.

7291 THE ROLE OF SELECTIVE ANGIOGRAPHY IN THE DIAGNOSIS AND TREATMENT OF HEPATOPORTAL ARTERIOVENOUS FISTULA. [CASE REPORT] *(E.)* Kaude, J. (U. Florida Coll. Med., Gainesville), D. L. Dudgeon and J. L. Talbert. *Radiology* 92(6):1271-1272, 1969.

7292 PARANEOPLASTIC ACUTE HEPATITIS. [CASE REPORT] *(E.)* Agnolucci, M. T. (Dept. Intern. Med., U. Modena, Italy) and M. Coppo. *Acta Hepatosplen (Stuttgart)* 16(2):85-89, 1969.

7293 TRANSPLANTATION OF CADAVERIC KIDNEYS FROM PATIENTS WITH HEPATORENAL SYNDROME. EVIDENCE FOR THE FUNCTIONAL NATURE OF RENAL FAILURE IN ADVANCED LIVER DISEASE. *(E.)* Koppel, M. H. (VA Ctr., Los Angeles, Calif.), J. W. Coburn, M. M. Mims, H. Goldstein, J. D. Boyle and M. E. Rubini. *New Eng J Med* 280(25):1367-1371, 1969.

7294 CLASSIFICATION OF PERIHEPATIC ABSCESSES. *(Rev.)(E.)* Whalen, J. P. (New York Hosp.-Cornell Med. Ctr., N. Y.) and J. P. Bierny. *Radiology* 92(7):1427-1437, 1969.

7295 GIANT HEPATIC HEMANGIOMA WITH CARDIAC FAILURE IN THE NEWBORN INFANT. VALUE OF HIGH-DOSAGE INTRAVENOUS UROGRAPHY AND UMBILICAL ANGIOGRAPHY. [CASE REPORT] *(E.)* Berdon, W. E. (Columbia U. Coll. Physicians Surgeons, New York, N. Y.) and D. H. Baker. *Radiology* 92(7):1523-1528, 1969.

7296 INFECTIOUS MONONUCLEOSIS COMPLICATED BY HEPATIC COMA. *(E.)* McMahon, J. M. (Birmington Baptist Hosp., Ala.), C. W. Elliott and R. C. Green. *Amer J Gastroent* 51(3):200-207, 1969.

7297 THE ROLE OF LIVER DYSFUNCTION IN THE OCCURRENCE OF THE NEURO-PSYCHIATRIC SIDE EFFECTS OF AMBILHAR. *(E.)* Basmy, K. (Fac. Med., Ain Shams U., Cairo, Egypt), S. M. Shoeb and Y. Mohran. *J Egypt Med Ass* 52(2/3):196-204, 1969.

7298 TREATMENT OF NONAMEBIC (PYOGENIC) LIVER ABSCESS. *(Rev.)(E.)* Spellberg, M. A. (Michael Reese Hosp., Chicago, Ill.). *Amer J Gastroent* 51(5): 410-417, 1969.

7299 TREATMENT OF HEPATIC COMA. [EDITORIAL] *(E.)* Müting, D. (Med. U. Clin., Homburg, Germany). *Digestion* 2(3):196-200, 1969.

7300 THE LIVER IN CHRONIC UNDERNUTRITION. *(E.)* Solbach, H. G. (2nd Med. Clin. Polyclin., U. Dusseldorf, Germany) and F. H. Franken. *German Med Monthly* 14(6):271-275, 1969.

7301 SURGICAL ACCIDENTS TO THE BILIARY TRACT. (PERSONAL STATISTICS DURING 26 YEARS OF GENERAL SURGERY.) *(Por.)* Perrone, E. B. (São Paulo, Brazil). *An Paul Med Cir* 93(2):53-58, 1967.

7302 PARASITOLOGICAL STUDIES ON LIVER ABSCESS IN CHEJU ISLAND. *(E.)* Hong, S. O. (Yonsei U. Coll. Med., Seoul, Korea), K. M. Cho, P. R. Chung and C. T. Soh. *Yonsei Med J* 9(2):127-138, 1968.

7303 THE CHRONIC FORM OF CHIARI'S DISEASE. *(Cz.)* Chlumský, J. (Med. Fac., Charles U., Prague, Czechoslovakia), V. Víšek, I. Kahanová and A. Chlumská. *Cas Lek Cesk* 106(36):1055-1057, 1967.

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7304 **A CASE OF HEPATO-LENTICULAR DEGENERATION.** *(Sp.)* Fernández-Nogués, F. (Fac. Med. Barcelona, Spain), J. Rodés Teixidor, M. Bruguera Cortada and J. Gibert-Queraltó. *Med Clin (Barcelona)* 49(3): 191-194, 1967.

7305 **PORTAL VEIN ANEURYSM.** *(Pol.)* Zawartka, J. (Munic. Pediat. Hosp., Wroclaw, Poland). *Pediat Pol* 42(8):981-983, 1967.

7306 **INTRAHEPATIC CALCULI. [CASE REPORT]** *(E.)* Heydorn, W. H. (USAH, Bad Cannstait, Germany). *Med Bull US Army Europ* 26(7):216-218, 1969.

7307 **SOME INDICES IN LAPAROSCOPIC DIAGNOSIS OF CHRONIC HEPATITIS.** *(Cz.)* Houbal, V. (Med. Fac., Purkyně U., Brno, Czechoslovakia) and P. Ježek. *Cas Lek Cesk* 106(46):1233-1236, 1967.

7308 **HEMIHEPATECTOMY FOR LIVER METASTASES. [CASE REPORT]** *(E.)* Hughes, E. S. R. (Royal Melbourne Hosp., Australia), I. H. McConchie, K. J. Hardy and V. Marshall. *Med J Aust* 1(11):569-572, 1969.

7309 **"ECTOPIC" LIVER IN THE UMBILICUS: AN UNUSUAL FOCUS OF INFECTION IN A NEWBORN INFANT.** *(E.)* Shaw, A. (St. Vincent's Hosp., New York, N. Y.) and S. Pierog. *Pediatrics* 44(3):448-450, 1969.

7310 **THE TREATMENT OF ACUTE HEPATIC FAILURE BY PORCINE LIVER PERFUSION.** *(E.)* Watts, J. M. (Prince Henry's Hosp., Melbourne, Australia). *Med J Aust* 1(7):324-326, 1969.

7311 **RED FACES AND YELLOW FACES.** *(E.)* Knox, J. D. E. *J Roy Coll Gen Pract* 18(86):13-17, 1969.

7312 **CAVERNOUS MALFORMATION OF THE PORTAL VEIN WITH PORTAL HYPERTENSION AND HYPERSPLENISM. [CASE REPORT]** *(E.)* Chandrasekhar, K. P. (Med. Coll., Trivandrum, India) and P. Radhalakshmi. *Antiseptic* 66(7):539-542, 1969.

7313 **LONGSTANDING HEMOCHROMATOSIS WITH POLYARTHRITIS AND TERMINAL HEPATOMA. [CASE REPORT]** *(E.)* Cliff, J. M. (Royal Naval Hosp., Haslar, England). *Proc Roy Soc Med* 62(7):641, 1969.

7314 **AMOEBIC ABSCESS OF THE LIVER.** *(Pol.)* Fibak, J. (F. Raszeji Munic. Hosp., Poznan, Poland). *Pol Tyg Lek* 24(21):803-804, 1969.

7315 **CLINICAL COURSE AND DIFFERENTIAL DIAGNOSIS OF CHRONIC HEPATITIS.** *(Ger.)* Wildhirt, E. (City Hosp., Kassel, Germany). *Deutsch Med J* 20(16):492-496, 1969.

7316 **INCIDENCE AND COMPLICATIONS OF LIVER BIOPSY. CAUSES, DIAGNOSIS, TREATMENT.** *(It.)* Menghini, G. (Munic. Hosp., Macerata, Italy) and D. Caporicci. *Rendic Riun Roma Gastroent* 1(1):35-46, 1969.

7317 **CHRONIC INFLAMMATORY LIVER DISEASE DIFFERENTIATION BY THE USE OF IMMUNOLOGY.** *(Ger.)* Schumacher, K. (Med. U. Clin., Cologne, Germany). *Deutsch Med J* 20(16):496-501, 1969.

7318 **WILSON'S DISEASE. EARLY DIAGNOSIS AND THERAPY.** *(Ger.)* Wewalka, F. (Ist U. Med. Clin., Vienna, Austria). *Wien Z Inn Med* 48(12):461-465, 1967.

7319 **EXPERIENCE WITH LONG-TERM TREATMENT OF WILSON'S DISEASE.** *(Ger.)* Schindler, H. (Hanusch Hosp., Vienna, Austria). *Wien Z Inn Med* 48(12):465-469, 1967.

7320 **HEPATIC HYDATIDOSIS. THERAPY.** *(Por.)* Pinotti, H. W. (Fac. Med., U. São Paulo, Brazil) and J. Fogliatto. *Hospital (Rio)* 72(2):349-364, 1967.

7321 **TREATMENT OF GENERALIZED LIVER DISEASES WITH VITAMIN $B_{12}$, FOLIC ACID, ASCORBIC ACID AND NICOTINAMIDE.** *(Sp.)* Perez Mota, A. (Sch. Digestive Dis., Hlth. Svc., Madrid, Spain). *Rev Esp Enferm Apar Dig* 27(6):933-944, 1968.

7322 **PROBLEMS ASSOCIATED WITH SURVIVAL AFTER PIG-LIVER PERFUSION. [CASE REPORT]** *(E.)* Harris, M. J. (Prince Henry Hosp., Sydney, Australia) and J. Beveridge. *Med J Aust* 2(7):348-351, 1969.

7323 **SOLITARY NONPARASITIC CYSTS OF THE LIVER. REPORT OF A CASE.** *(E.)* Arfaa, M. (Mem. Hosp., New York, N. Y.) and N. H. Isaacson. *Med Ann DC* 38(8):423-436, 1969.

7324 **STRANGULATION OF THE LIVER IN EPIGASTRIC HERNIA. [CASE REPORT]** *(E.)* Gupta, A. S. (Dept. Surg., Bikaner, India), V. C. Bothra and R. K. Gupta. *Amer J Surg* 115(6):843-844, 1968.

7325 **HEPATOMA IN CHILDHOOD. REPORT OF TWO CASES.** *(E.)* Sethi, A. S. (All-India Inst. Med. Sci., New Delhi) and A. M. Jain. *Indian J Pediat* 35(242):140-143, 1968.

7326 **THE NEURO-PSYCHIATRIC DISTURBANCES OF LIVER DISEASE.** *(E.)* Zeegen, R. (St. Bartholomew Hosp., London, England) and A. M. Dawson. *Brit J Clin Pract* 22(4):170-176, 1968.

7327 **THE INVESTIGATION OF PORTAL HYPERTENSION.** *(E.)* Zeegen, R. (St. Bartholomew Hosp., London, England) and A. M. Dawson. *Brit J Clin Pract* 22(4):139-146, 1968.

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7328 **THE SURGICAL TREATMENT OF PORTAL HYPERTENSION.** *(E.)* Rothwell-Jackson, R. L. and A. H. Hunt. *Brit J Clin Pract* 22(4):156-168, 1968.

7329 **KLINISCHE HISTOPATHOLOGIE DER LEBER (CLINICAL-HISTOPATHOLOGY OF THE LIVER).** *(Ger.)* Wepler, W. and E. Wildhirt. Stuttgart, Georg Thieme, 1968. 154 pp.

7330 **ANAESTHESIA IN PORTA CAVAL SHUNT OPERATIONS.** *(E.)* Neematallah, F. (Fac. Med., U. Alexandria, Egypt) and H. Nasser. *Alexandria Med J* 14(5/6):303-312, 1968.

7331 **DIFFERENCES BETWEEN CONJUGATED AND UNCONJUGATED ETHER-SOLUBLE BILIRUBIN.** *(Ger.)* Beck, K. (Med. U. Clin., Freiburg, Germany). Pp. 85-91 in *Ikterus.* International Symposium 27-29. October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

7332 **INTERMITTENT INTRAHEPATIC CHOLESTASIS OF UNKNOWN ETIOLOGY.** *(E.)* Tygstrup, N. (Munic. Hosp., Copenhagen, Denmark). Pp. 249-255 in *Ikterus.* International Symposium 27-29. October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

7333 **THE ROLE OF LYSOSOMES IN JAUNDICE AND IN PIGMENT DEPOSITION IN LIVER CELLS.** *(Ger.)* Hubner, G. (Inst. Pathol., U. Cologne, Germany). Pp. 115-124 in *Ikterus.* International Symposium 27-29. October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

7334 **ETHER-SOLUBLE BILIRUBIN: AN UNUSUAL COMPLEX OF BILIRUBIN IN HUMAN SERUM.** *(E.)* Howe, R. B. (NIH, Bethesda, Md.). Pp. 79-84 in *Ikterus.* International Symposium 27-29. October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

7335 **IMPAIRMENT OF LUNG FUNCTION AFTER PORTACAVAL ANASTOMOSIS.** *(E.)* Cotes, J. E. (Llandough Hosp., Penarth, Wales), G. B. Field, G. J. A. Brown and A. E. Read. *Lancet* 1(7549):952-955, 1968.

7336 **THE SIGNIFICANCE OF SERUM IRON IN THE DIFFERENTIAL DIAGNOSIS OF JAUNDICE.** *(It.)* Pasquale, A. (Amedeo di Savoia Hosp. Infect. Dis., Turin, Italy), P. Moiraghi and C. Guasco. *G Mal Infett* 20(7):679-680, 1968.

7337 **PATHOLOGICAL FINDINGS IN ONE CASE OF NEURONAL AND MESENCHYMAL STORAGE DISEASE. ITS RELATIONSHIP TO LIPIDOSES AND TO MUCOPOLYSACCHARIDOSES.** *(E.)* Berard, M. (Clin. Child. Dis., Marseille, France), M. Toga, R. Bernard, D. Dubois, R. Mariani and J. Hassoun. *Path Europ* 3(2/3):172-183, 1968.

7338 **INHERITANCE OF POLYCYSTIC DISEASE OF THE LIVER. REPORT OF TWO UNUSUAL CASES IN SISTERS.** *(E.)* Peltokallio, P. (U. Cent. Hosp., Helsinki, Finland) and V. Peltokallio. *Ann Chir Gynaec Fenn* 57(3):291-293, 1968.

7339 **RELAPSING HEPATITIS: REPORT OF A CASE WITH A REVIEW OF THE LITERATURE.** *(E.)* Lloyd, G. H. T. (Royal Alexandra Hosp., Rhyl, Whales) and A. K. Chakrabarti. *Brit J Clin Pract* 22(5):217-221, 1968.

7340 **PIGMENTED LIVER WITHOUT THE DUBIN-JOHNSON SYNDROME.** *(Ger.)* Manitz, G. (U. Med. Clin., Münster, Germany). Pp. 68-71 in *Ikterus.* International Symposium 27-29. October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

7341 **BUDD-CHIARI SYNDROME.** *(Fr.)* Dubrujeaud, J. (Cent. Hosp., Versailles, France). *Gaz Med France* 75(11):2273-2278, 1968.

7342 **CAVERNOUS ANGIOMA OF THE LIVER.** *(Pol.)* Koszarski, J. (3rd Surg. Clin., Acad. Med., Stettin, Poland). *Przegl Lek* 24(2):324-325, 1968.

7343 **PROTECTIVE TRANSHEPATIC DRAINAGE IN BILIARY-DIGESTIVE TRACT ANASTOMOSES.** *(Sp.)* Gomez-Ferrer Boyo, F. (Fac. Med. Valencia, Spain). *Cir Ginec Urol* 22(3):368-371, 1968.

7344 **UNORTHODOX HEPATECTOMY FOR PRIMARY CANCER OF THE LIVER.** *(Fr.)* Akata, O. (Ankara, Turkey). *Rev Med Moyen Orient* 24(3):218-219, 1967.

7345 **ANNUAL REVIEW OF MEDICINE (VOL. 19).** *(E.)* de Graff, A. C. (New York U. Coll. Med., N. Y.) and W. P. Creger, Eds. Polo Alto, Calif., Annual Reviews, Inc., 1968. 540 pp.

7346 **CHRONIC IDIOPATHIC JAUNDICE.** *(E.)* Arias, I. M. (Albert Einstein Coll. Med., Bronx, N. Y.). Pp. 65-68 in *Ikterus.* International Symposium 27-29. October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

7347 **NON-CIRRHOTIC INTRAHEPATIC PORTAL HYPERTENSION.** *(E.)* Sherlock, S. (London, England). *Rev Int Hepat* 17(8):713-718, 1967.

7348 **TROPICAL HEPATOLOGY ON THE IVORY COAST.** *(Fr.)* Pene, P. (Cent. Hosp., Abidjan, Ivory Coast), R. Loubiere, M. Bouvry, A. Bourgeade, H. Aye. and M. Beda. *Med Afr Noire* 14(11):553-554, 1967.

7349 **CURRENT MANAGEMENT OF POST-SHUNT HEPATIC ENCEPHALOPATHY.** *(E.)* Brown, H. (Boston, Mass.) and W. V. McDermott Jr. *Trans New Eng Surg Soc* 48:71-73, 1967.

## LIVER AND BILIARY TRACT

7350 **SEGMENTAL SURGICAL DISEASE OF THE LIVER.** *(E.)* Braasch, J. W. (Boston, Mass.). *Trans New Eng Surg Soc* 48:69-70, 1967.

7351 **SEPSIS, THROMBOTIC THROMBOCYTOPENIC PURPURA OR HEPATITIS? A PROBLEM CASE.** *(E.)* Zilliacus, H. (U. Cent. Hosp., Helsinki, Finland) and L. Pollanen. *Ann Chir Gynaec Fenn* 57(3):398-401, 1968.

7352 **HEPATO-BILIARY MIGRAINES AND ALLERGY.** *(Fr.)* Bonnet, G. F. (Vichy, France) and P. Nepveux. *Maroc Med* 47(506):683-686, 1967.

7353 **EXPERIMENTAL ALTERATIONS OF THE ERGASTOPLASM OF THE MOUSE LIVER.** *(E.)* Wilson, J. W. (Providence, R. I.) and E. H. Leduc. *Rev Int Hepat* 17(8):883-893, 1967.

7354 **AUTONOMOUS MACRO-NODULAR LIVER TUBERCULOSIS.** *(Fr.)* Tatibouet, L. and J. Mollaret. *Ouest Med* 20(23):1432-1438, 1967.

7355 **LONG TERM SURVIVAL IN CARCINOMA OF THE LIVER. CASE REPORT.** *(E.)* Modlin, J. J. (Ellis Fishel State Cancer Hosp., Columbia, Mo.), C. M. Perez-Mesa, R. E. Johnson and H. Yeager. *Missouri Med* 64(12):985-987, 1967.

7356 **THE CORRELATION BETWEEN COMMON CIRRHOSIS IN THE AFRICAN, VIRAL HEPATITIS AND PRIMARY CANCER OF THE LIVER.** *(Fr.)* Payet, M., M. Sankale, P. Pene and A. Bourgeade. *Med Afr Noire* 14(11):571-572, 1967.

7357 **INDUCED PORTAL HYPERTENSION. EXPERIMENTAL MODEL.** *(Fr.)* Perissat, J. (Saint-Andre Hosp., Bordeaux, France), Y. Raulin and M. Quemener. *J Chir (Paris)* 94(5):435-449, 1967.

7358 **SURGICAL AND DRUG TREATMENT OF LIVER CANCER.** *(Rus.)* Shapkin, V. S. (Vladivostok Med. Inst., USSR). *Vop Onkol* 13(10):66-71, 1967.

7359 **RESECTION OF THE LOWER PORTION OF THE LEFT LOBE OF THE LIVER IN PRIMARY CANCER.** *(Rus.)* Levina, Z. I. (Kuibyshev Med. Inst., USSR). *Vop Onkol* 13(9):106-107, 1967.

7360 **CLINICAL RESULTS OF TREATMENT WITH PHOSPHORIC ESTERS (FRUCTOGLUCINA) IN SOME ACUTE AND CHRONIC LIVER DISEASES.** *(It.)* Mori, G., M. Colombo and M. Manassi. *Riforma Med* 82(20):549-555, 1968.

7361 **AN AUTOPSY CASE OF PRIMARY MIXED TUMOR OF THE LIVER, WITH A REVIEW OF THE LITERATURE.** *(Jap.)* Saito, T., K. Shimada and S. Tanaka. *Jap J Cancer Clin* 14(7):572-580, 1968.

7362 **EPIDEMIOLOGICAL AND CLINICAL STUDY OF PRIMARY CARCINOMA OF THE LIVER–A STUDY OF COLLECTED AUTOPSY CASES IN JAPAN.** *(Jap.)* Arima, M. *Jap J Cancer Clin* 14(10):837-843, 1968.

7363 **THE MORPHOLOGY OF PRIMARY CANCER OF THE LIVER.** *(Rus.)* Petrovichev, N. N. (I. P. Pavlov 1st Leningrad Med. Inst., USSR). *Vop Onkol* 13(10):60-65, 1967.

7364 **GENERAL CLINICAL EVALUATION OF INDOCYANINE GREEN TEST IN DIAGNOSIS OF CHRONIC LIVER DISEASES.** *(Pol.)* Janecki, J. (Diagnostic Lab., Acad. Med., Warsaw, Poland) and S. Kubicki. *Pol Tyg Lek* 23(9):295-298, 1968.

7365 **PROBLEM OF LIVER FUNCTION EVALUATION IN CHILDREN.** *(Pol.)* Bittner, K. (2nd Pediat. Clin., Acad. Med., Poznan, Poland), J. Soocha and A. Waligora. *Pol Tyg Lek* 23(17):623-625, 1968.

See also: 6396,6407,6436,6447,6590,6620,6621,6622,6624,6657,6700,6701
6711,6712,6717,6720,6721,6722,6728,6729,6730,6731,6732,6744,
6746,6755,6759,6771,6772,6782,6811,6844,6865,6924,7029,7074,
7108,7165,7421

## Hepatic Injury

**7366 THE EFFECT OF OROTIC ACID ON FIBROSIS INDUCED IN RABBITS BY CARBON TETRACHLORIDE.** *(Ger.)* Kratzsch, K. H. (Med. Clin., Karl Marx U., Leipzig, Germany) and H. Petzold. *Z Ges Inn Med* 22(18): 284-285, 1967.

Rabbits, given 10 mg/kg body weight/day of orotic acid for 6 weeks, had no evidence of liver damage. When rabbits were treated simultaneously with 0.2 ml of carbon tetrachloride twice a week and the same dose of orotic acid for 6 weeks, orotic acid did not prevent the development of fibrosis but it did have an inhibitory effect on the proliferation of connective tissue. Histological studies showed that the activities of alkaline and acid phosphatase were lower in the connective tissue of rabbits given both carbon tetrachloride and orotic acid than in those given carbon tetrachloride alone. The activities of these enzymes in the hepatic parenchyma were normal. Similar results were obtained for ATPase activities. It is concluded that in the dosages employed for the treatment of liver diseases orotic acid does not produce fatty liver. It does reduce the effects of experimentally induced damage and may promote liver regeneration.

**7367 HEPATITIS AFTER EXPOSURE TO HALOTHANE.** *(E.)* Klion, F. M. (Mount Sinai Sch. Med., New York, N. Y.), F. Schaffner and H. Popper. *Ann Intern Med* 71(3):467-477, 1969.

Clinical records and histologic specimens of liver from 42 patients with hepatitis after exposure to halothane showed clinical and pathologic features helpful in differentiating hepatitis from other causes of jaundice in the postoperative period. Of the 20 males, 13 died and of the 22 females, 14 died. Fever and jaundice were temporally related to operation. Peripheral eosinophilia was common, and splenomegaly was unusual. Light-microscopic examination showed the hallmarks of viral hepatitis. Although steatosis, granuloma formation, and eosinophils in the inflammatory exudate were noted frequently, these additional findings were not diagnostic. Sera of 6 patients examined contained antimitochondrial antibodies, and electron microscopic studies in 2 showed mitochondrial abnormalities not found in viral hepatitis. Because of the clinical features and some of the histologic findings the lesion was considered a hypersensitivity reaction differing from shock. The presence of circulating antibodies supports this finding. Twelve patients developed hepatitis after 1 exposure and half survived; 22 were exposed twice and 7 (32%) survived. None had evidence of preexisting liver disease. The recognition of the mild or early stages of the hepatitic reaction is important to prevent subsequent administration of halothane.

**7368 SERUM ORNITHINE CARBAMOYL TRANSFERASE ACTIVITY IN MAN AFTER HALOTHANE ANAESTHESIA AND SPINAL ANAESTHESIA WITH AND WITHOUT SYSTOLIC BLOOD PRESSURE FALL.** *(E.)* Brohult, J. (Hosp. Danderyd, Sweden) and J. Gillquist. *Acta Chir Scand* 135(2):113-120, 1969.

An increased activity of ornithine carbamoyl transferase in serum (SOCT) is a specific, sensitive sign of liver cell injury. To determine whether or not halothane anesthesia *per se* elicits a rise in SOCT, this study was made on 2 groups of patients who underwent halothane anesthesia, 1 group of 9 (4 male, 5 female) for renal angiography, and the other group (9 male, 1 female) for an operation. Halothane anesthesia for 90 min without an operation did not increase SOCT, which suggests that halothane was not directly hepatotoxic. Operation during halothane anesthesia without complications was followed by a rise in SOCT from 1.2 nm before the anesthesia to 5.6 nm on day 4. A comparison was also made in a group of patients (25 male, 1 female) operated on under spinal anesthesia between those who had a drop in blood pressure (8 males) and those 18 without systolic blood pressure fall. Operation during spinal anesthesia without complications was similarly followed by a rise in SOCT after 4-7 days. This rise in SOCT is apparently increased because postoperative protein metabolism causes increased synthesis of OCT in the liver. Drop in blood pressure during spinal anesthesia in patients over 50 yr of age resulted in a rise in SOCT within 24 hr, possibly due to a functional disturbance in the mitochondria of the liver cells. No such rise was observed in the patients without a drop in blood pressure.

**7369 LIVER CELL NECROSIS IN RATS AFTER PROLONGED ETHANOL INGESTION UNDER THE INFLUENCE OF AN ALCOHOL-DEHYDROGENASE INHIBITION.** *(E.)* Lelbach, W. K. (Med. Clin. U. Bonn, Germany). *Experientia* 25(8):816-818, 1969.

The minimal lethal dose of pyrazole, an inhibitor of alcohol-dehydrogenase, was found to be 850 mg/kg for Wistar rats (205-220 g). Animals dying 6-11 days after oral administration showed extensive centrilobular necrosis. Daily doses of 37-38 mg/kg for 8 weeks failed to cause microscopic liver damage. Inhibition of ethanol metabolism (6.4 g/kg) by the drug appeared to be dose dependent. The blood alcohol level was 28 mg/100 ml with 32 mg pyrazole/kg and 72 mg/100 ml with 70 mg/kg. A daily dose range of 25-50 mg/kg of the inhibitor given after 5 weeks of ethanol ingestion (6.0-7.7 g/kg daily) resulted in 40 of 95 rats dying within 1 week. All but 9 of the remainder eventually showed hepatocellular damage (fatty and hydropic changes, cytoplasmic hyalinization, pyknosis and karyorrhexis). In 56 of the animals there was a acidophilic centrilobular necrosis.

**7370 CLINICAL STUDIES WITH A NEW RIFAMYCIN DERIVATIVE.** *(E.)* Cohn, H. D. (Clin. Res., CIBA Pharm. Co., Summit, N. J.). *J Clin Pharmacol* 9(2):118-125, 1969.

Human (9 adult males) pharmacodynamic studies were carried out with rifampin, the N-methyl-piperazine derivative of rifamycin SV, a new semi-synthetic antibiotic belonging to the rifamycin family. Following the replication of an apparent mild, transient, unconjugated hyperbilirubinemia without jaundice in an additional 9 normal volunteers, a series of studies was initiated in order to elicit the possible cause. Included as possible causes are interference with bilirubin metabolism or the van den Bergh procedure, laboratory error or direct hepatotoxic reaction. No completely satisfactory explanation exists. The presence of a combined causation is not ruled out, not unlike that reported previously with novobiocin. A classification of sites where any drug might potentially interfere with the bilirubin "cycle" has also been presented. It is considered unlikely that these miniscule elevations of bilirubin have any clinical significance.

7371 **BANTI-LIKE SYNDROME INDUCED BY ESTROGEN AND CHOLESTEROL.** *(E.)* Numano, F. (Tokyo Med. Dent. U., Japan), K. Katsu, T. Kitta and T. Shimamoto. *Acta Hepatosplen (Stuttgart)* 16(2):77-85, 1969.

A condition closely resembling Banti's syndrome (cirrhotic changes in the liver, enlargement of the spleen with histological features of fibroadenia and sinus hyperplasia, anemia and ascites) was found in 20 rabbits treated with 1 mg/kg (10 animals) and 10 mg/kg of estrogen (10) while being fed 150 gm of 1% cholesterol daily for 15 weeks. Ten rabbits served as controls. Sixteen rabbits died, mostly after 7-8 days; 15 of them among the estrogen treated. Only 1 rabbit treated with 10 mg/kg estrogen lived. Body weight and serum cholesterol tended to increase in all, with a gradual decrease in body weight of the 1 mg/kg estrogen group after the first 10 weeks. The characteristic findings were splenic enlargement and ascites in the estrogen treated groups. Diffuse fibrosis of the liver accompanied by ascites indicates that probably estrogen affects not only the spleen but the liver as well. The combination of estrogen with a hepatosplenic injuring factor such as cholesterol may play an important role in the etiology of Banti's syndrome.

7372 **HEPATIC COMA AND PERITONEAL DIALYSIS. A CASE REPORT.** *(Por.)* Zyngier, F. R. (Sch. Med., Fed. U. Rio de Janeiro, Brazil), A. R. Rosa, M. Grinberg, C. Vargas and C. F. Filho. *Hospital (Rio)* 72(5):1385-1392, 1967.

7373 **SYSTEMIC MANIFESTATIONS IN LUPOID HEPATITIS.** *(Por.)* Papi, J. A. (Med. Sch., Fed. U. Rio de Janeiro, Brazil), M. A. C. Lira and C. Vargas. *Hospital (Rio)* 72(5):1371-1383, 1967.

7374 **DRUG-INDUCED HEPATITIS.** *(Rev.)(Fr.)* Dugal, J..P. (Med. Svc., Hotel-Dieu, Quebec, Canada). *Laval Med* 39(7):587-589, 1968.

7375 **LIVER DAMAGE FROM DIFFERENT ALCOHOLIC DRINKS.** *(E.)* Lelbach, W. K. (Dept. Med., Bonn U., Germany). *German Med Monthly* 13(1):31-39, 1968.

7376 **ALTERATION IN BILIARY BILIRUBIN CONTENT AND NONERYTHROPOIETICALLY DERIVED BILIRUBIN SYNTHESIS IN RATS AFTER α-NAPHTHYLISOTHIOCYANATE ADMINISTRATION.** *(E.)* Roberts, R. J. (Coll. Med., U. Iowa, Iowa City) and G. L. Plaa. *J Pharmacol Exp Ther* 161(2):382-388, 1968.

7377 **PATHOLOGICAL ANATOMY OF CHRONIC HEPATITIS AND CHRONIC ALCOHOL INJURIES TO THE LIVER.** *(Ger.)* Wepler, W. (City Hosp., Kassel, Germany). *Deutsch Med J* 20(16):490-492, 1969.

7378 **INFLUENCE OF HORMONES ON N-2-FLUORENYLDIACETAMIDE-INDUCED HYPERPLASTIC HEPATIC NODULES IN RATS.** *(E.)* Reuber, M. D. (Natl. Cancer Inst., Bethesda, Md.). *J Nat Cancer Inst* 43(2):445-452, 1969.

7379 **LIVER IRRADIATION IN CHILDREN: ACUTE CHANGES WITH TRANSIENT LEUKOPENIA AND THROMBOCYTOPENIA. [CASE REPORT]** *(E.)* Tefft, M. (Harvard Med. Sch., Boston, Mass.), D. Traggis and R. M. Filler. *Amer J Roentgen* 106(4):750-765, 1969.

7380 **DRUG INDUCED JAUNDICE WITH NON-CONJUGATED BILIRUBIN.** *(Fr.)* Émond, M. (Med. Fac., U. Montreal, Canada). *Un Med Canada* 96(7):847-848, 1967.

7381 **HEPATIC FIBROSIS FOLLOWING LONG ACTING NICOTINIC ACID THERAPY: A CASE REPORT.** *(E.)* Kohn, R. M. (Buffalo Gen. Hosp., N. Y.) and M. Montes. *Amer J Med Sci* 258:94-99, 1969.

7382 **CLINICAL AND LABORATORY FINDINGS IN ALCOHOL STEATOSIS AND LIVER STEATOFIBROSIS.** *(E.)* Knežević, S. (U. Hosp., Zagreb, Yugoslavia), L. Kallai and M. Gjurašin. *Med J (Belgrade)* 90(10):9-20, 1968.

7383 **ON THE TOXICITY OF BILIRUBIN.** *(E.)* Charbonnier, A. (Cochin Cent. Hosp., Paris, France). Pp. 93-97 in *Ikterus.* International Symposium 27-29. October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

7384 **JAUNDICE IN ALCOHOLISM.** *(E.)* Leevy, C. M. (Newark City Hosp., N. J.) and G. Paumgartner. Pp. 205-210 in *Ikterus.* International Symposium 27-29. October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

7385 **DRUG INDUCED JAUNDICE.** *(E.)* Popper, H. (New York, N. Y.). Pp. 235-242 in *Ikterus.* International Symposium 27-29. October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

7386 **JAUNDICE ASSOCIATED WITH ORAL CONTRACEPTIVE ADMINISTRATION.** *(Sp.)* Medina, L. A. (Med. Sch., U. Chile, Valparaiso), M. A. Lucchini, O. H. Aste, E. S. Avendano, C. H. Arellano and O. E. Bustos. *Rev Esp Enferm Apar Dig* 27(4):535-543, 1968.

7387 **THE EFFECT OF ALDRIN ON THE LIVER.** *(Fr.)* Pallade, S. (Inst. Hyg., Bucharest, Romania), C. Popovici, G. Rotaru, E. Gabrielescu and M. Dorobantu. *Med Lavoro* 59(5):346-356, 1968.

7388 **CHEMICAL STRUCTURES AND PATHOLOGICAL EFFECTS OF PYRROLIZIDINE ALKALOIDS.** *(E.)* Schoental, R. (Med. Res. Counc. Lab., Carshalton, England). *Israel J Med Sci* 4(6):1133-1145, 1968.

See also: 6409,6425,6429,6588,6606,6643,6646,6687,6690

## Viral Hepatitis

**7389 FAILURE OF AUSTRALIA ANTIBODY TO PREVENT POST-TRANSFUSION HEPATITIS.** *(E.)* Holland, P. U. (Natl. Inst. Hlth., Bethesda, Md.), J. H. Walsh, A. G. Morrow and R. H. Purcell. *Lancet* 2(7620):553-555, 1969.

In a prospective study of 64 patients who received multiple transfusions (average of 18) at the time of open-heart surgery, the presence of Australia antibody in the serum was studied in relation to the development of post-transfusion hepatitis. Neither Australia antigen nor antibody were found in any patient pre-transfusion. Australia antibody developed in 2 of 32 patients with hepatitis and in 4 of 32 patients without hepatitis. Australia antigen was found in 4 of the patients with hepatitis but it was not detected in those without hepatitis. The coexistence of Australia antigen and Australia antibody was not demonstrated in any patient. In 2 patients Australia antibody, which was shown to be present before the onset of post-transfusion hepatitis, did not prevent the disease. The occurrence of hepatitis in patients with antibody to the Australia antigen suggests that such antibody does not completely protect against hepatitis, or, alternatively, that the hepatitis was caused by an agent serologically distinct from Australia antigen.

**7390 FOLLOW-UP RESULTS IN 348 CASES OF INFANTILE VIRUS HEPATITIS.** *(It.)* Jannuzzi, C. (Infect. Dis. Clin., U. Genoa, Italy) and A. Cattaneo. *Minerva Pediat* 21(25):1138-1146, 1969.

A follow-up study was made 348 pediatric patients (all less than 14 yr) with viral hepatitis. Of the clinical, or laboratory (serum transaminase levels, colloid lability) data or features of the patient's history which are the ones of major importance in determining relapses. The sole essential and significant factor, even in cases of asymptomatic recurrence, was found to be the serum transaminase value. Fifty-five of the 348 subjects followed showed persistent regressive changes of the hepatic parenchyma (31 slight; 24 severe). This suggests the importance of long-term follow-up of this disease. The final benign course in this group is stressed, probably attributable to the age of the patients.

**7391 THE PROGNOSTIC VALUE OF DETERMINING ENZYME ACTIVITY IN VIRAL HEPATITIS. II. RELATION OF ENZYME ACTIVITY AND THE LONG-TERM PROGNOSIS OF THE DISEASE.** *(Cz.)* Ježek, P. (Med. Fac., U. Brno, Czechoslovakia) and V. Houbal. *Cas Lek Ces* 107(8):233-236, 1968.

Determinations were made of SGOT, SGPT, aldolase, sorbitol dehydrogenase, and isocitrate dehydrogenase activities on 181 patients during acute viral hepatitis and for periods of 4-5 yr after recovery. At the onset of the infection there was no significant difference in the enzyme activities in patients who recovered without complications and in those who later developed chronic hepatitis or posthepatitic cirrhosis. However, from the 2nd-3rd week of the acute stage and later the activities of these enzymes were significantly higher among those who developed sequelae. Patients who have persistent elevations in serum enzyme activities during their recovery should be kept under close surveillance until both clinical and laboratory findings become completely normal.

**7392 HEPATITIS IN MARMOSETS: INDUCTION OF DISEASE WITH CODED SPECIMENS FROM A HUMAN VOLUNTEER STUDY.** *(E.)* Holmes, A. W. (Presbyterian-St. Luke's Hosp., Chicago, Ill.), L. Wolfe, H. Rosenblate and F. Deinhardt. *Science* 165(3895):816-817, 1969.

Pre-inoculation and acute-phase plasmas were obtained from 3 of 10 human volunteers who had been inoculated p.o. with infectious plasma containing the Willowbrook MS-1 strain of hepatitis virus and who developed clinical disease (confirmed by liver biopsy) 27, 29 and 31 days, resp., after inoculation. Marmosets received a diluted specimen (0.5 ml i.v.). Isocitric dehydrogenase and SGOT activities were determined weekly and liver biopsies were done every 2 weeks in both the 35 experimental and the 6 control animals. Only marmosets inoculated with acute-phase human plasma developed hepatitis which was confirmed both biochemically and by liver biopsy. Incubation periods were fairly consistent at 30-40 days from inoculation to detection of first abnormal biochemical tests. Hepatitis in the marmosets probably represents the transmission of human disease rather than the activation of a latent "marmoset hepatitis".

**7393 ABNORMAL BILE DUCT EPITHELIUM IN LIVER BIOPSIES WITH HISTOLOGICAL SIGNS OF VIRAL HEPATITIS.** *(E.)* Poulsen, H. (Kommunehospitalet, Copenhagen, Denmark) and P. Christoffersen. *Acta Path Microbiol Scand* 76(3):383-390, 1969.

From a total of 1582 specimens, 83 percutaneous liver biopsies with histological appearance of viral hepatitis were chosen for examination. In 14 of these abnormal bile duct epithelium with swollen and necrotic cells, and with infiltration of inflammatory cells (predominantly lymphocytes) were demonstrated. Five of the 14 showed viral hepatitis without piecemeal necrosis. Of these, 4 had no or very slight fibrosis of the portal areas without bile duct proliferation. The remaining 9 had a histological appearance seen in chronic aggressive hepatitis with moderate activity and with features of acute hepatitis. All 14 biopsies were from women patients, 45-82 yr old (average 62 yr). Changes in the bile ducts are part of or a sequel to hepatitis and are not diagnostic for primary biliary cirrhosis.

**7394 A FORTUITOUSLY CONTROLLED STUDY OF STEROID THERAPY IN ACUTE VIRAL HEPATITIS I. ACUTE DISEASE.** *(E.)* Blum, A. L. (Kantonsspital, Zurich, Switzerland), R. Stutz, U. P. Haemmerli, P. Schmid and G. F. Grady. *Amer J Med* 47(1):82-92, 1969.

The clinical course and the results of liver function tests were compared for 457 hepatitis patients admitted to 2 hospitals where treatment was comparable except that steroids were used frequently (89.5%) at 1 and much less (16.5%) at the other. Hospital populations were compared rather than treatment groups in order to avoid the bias that exceptions to routine therapy woul impose. Admission parameters were distributed in a compensating fashion which permitted use of the entire hospital populations in evaluating steroid effects. A special grouping method of covariance analysis was employed. Steroid treatment was associated with more rapid resolution of elevated serum levels of bilirubin throughout hospitalization and of transaminases and alkaline phosphatase during the first 2 weeks. The frequency of intercurrent illness, chiefly peptic ulcer and pyogenic infections, was twice as high (15% vs 7%) at the hospital using steroids routinely. The relapse rate (13% vs 4%) was 3 times that of the control hospital patients. These significant findings ($p > 0.01$) were partially offset by less convincing evidence that steroid treatment may prevent hepatic coma. Of the patients at the "steroid hospital" 3% died of peptic ulcer complications. Neither hospitalization nor time lost from work was shortened by steroid therapy. Subclassification of patients according to prognostic attributes such as age or serum bilirubin levels on admission did not identify any category in which steroid therapy was more advantageous.

7395 **A FORTUITOUSLY CONTROLLED STUDY OF STEROID THERAPY IN ACUTE VIRAL HEPATITIS. II. FOLLOW-UP EXAMINATION OF 202 PATIENTS.** *(E.)* Stutz, R. (Kantonsspital, Zurich, Switzerland), A. L. Blum, U. P. Haemmerli, P. Schmid and M. Schmid. *Amer J Med* 47(1):93-100, 1969.

Follow-up physical examination and liver function tests were performed in 202 patients 1-7 yr after recovery from acute viral hepatitis. They had been treated in 2 hospitals in which treatment was comparable except that steroids were used frequently (89.5%) at one (63 patients) and less often (16.5%) at the other (139 patients). Chronic hepatitis was found in 6 of 11 elderly women whose acute hepatitis had been mild and protracted. In other patients chronic hepatitis developed more rarely (1%). The incidence of chronic hepatitis detected was about the same regardless of the interval between the second examination and recovery from the acute disease. The total incidence of chronic liver disease was 6% in the "steroid hospital" and 7% in the "control hospital," but the latter figure was only 3% when cases of fatty liver and nonspecific parenchymal changes were excluded. Subjective symptoms were also distributed equally between the hospitals, 62 and 60% at the steroid and control hospitals, resp., and bore little relation to the incidence of chronic liver disease.

7396 **VIRUS HEPATITIS.** *(E.)* Jamieson, W. M. *J Roy Coll Gen Pract* 18(86):7-13, 1969.

7397 **ECG CHANGES IN VIRAL HEPATITIS.** *(It.)* Martano, M. (Amedo di Savoia, Hosp., Turin, Italy), A. Pasquale and S. S. Hamid. *G Mal Infett* 19(6):360-361, 1967.

7398 **SERUM HEPATITIS AMONG SWEDISH TRACK-FINDERS. II. A CLINICAL STUDY.** *(E.)* Gille, G. (Natl. Bacteriol. Lab., Stockholm, Sweden), O. Ringertz and B. Zetterberg. *Acta Med Scand* 182(2):129-135, 1967.

7399 **ACTIVE CHRONIC VIRAL HEPATITIS. STUDY OF SOME IMMUNOLOGICAL ASPECTS.** *(It.)* Matano, F. (Infect. Dis. Clin., U. Naples, Italy), C. Pezzullo, V. Ventruto, G. Manzillo, T. Ferraro and G. D Di Stasio. *Riforma Med* 82(19):519-527, 1968.

7400 **THE DIAGNOSTIC AND EPIDEMIOLOGICAL VALUE OF THE SERUM TRANSAMINASES IN THE EARLY DETECTION OF ACUTE VIRAL HEPATITIS.** *(E.)* Jelić, O. (Med. Ctr., Brod, Yugoslavia) and A. Jelić. *Med J (Belgrade)* 90(9):16-20, 1968.

7401 **SERUM TRANSAMINASES PATTERN IN VIRAL HEPATITIS AND OBSTRUCTIVE JAUNDICE.** *(E.)* de Ritis, F. (Naples, Italy). Pp. 313-314 in *Ikterus.* International Symposium 27-29. October 1967. Beck, K., Ed. New York, F. K. Schattauer Verlag, 1968. 492 pp.

7402 **VIRAL INHIBITION OF THE PHYTOHEMAGGLUTININ RESPONSE OF HUMAN LYMPHOCYTES AND APPLICATION TO VIRAL HEPATITIS.** *(E.)* Willems, F. T. C. (Baylor U. Coll. Med., Houston, Tex.), J. L. Melnick and W. E. Rawls. *Proc Soc Exp Biol Med* 130(2): 652-661, 1969.

7403 **MEASLES IN VIRAL HEPATITIS. (DIAGNOSIS)** *(It.)* Arditi, E. (Pediat. Clin., U. Turin, Italy) and S. Rossetto. *G Mal Infett* 19(6):371-372, 1967.

7404 **HEPATITIS: AN UNPLEASANT DISEASE BUT RARELY A KILLER.** *(Rev.)(E.)* Sherlock, S. (Royal Free Hosp. Med. Sch., London, England). *Indian Pract* 22(6):336-337, 1969.

7405 **A STUDY OF RECENT CASES OF INFECTIVE HEPATITIS.** *(E.)* Rajappan, P. N. (Madras, India). *Antiseptic* 66(6):444-446, 1969.

7406 **THE EFFECT OF CORTICOTHERAPY ON FIBRINOLYSIS IN VIRAL HEPATITIS.** *(E.)* Nowak, A. (Silesian Med. Acad., Katowice, Poland), M. Wozniak and E. Fojt. *Pol Med J* 8(2):336-342, 1969.

7407 **DETECTING HEPATITIS VIRUS IN POTENTIAL BLOOD DONORS. [EDITORIAL]** *(E.)* Herrell, W. E. *Clin Med* 76(7):11-12, 1969.

7408 **THE BEHAVIOR OF THE GASTRIC JUICE ACIDITY IN INFECTIOUS HEPATITIS PATIENTS AND THE EFFECT OF GLYCOCORTICOSTEROID THERAPY.** *(Pol.)* Fejkel, W. (Clin. Infect. Dis., Krakow, Poland), M. Lach-Zajacowa and B. Wilkon. *Przegl Lek* 23(7): 551-556, 1967.

7409 **INFECTIOUS HEPATITIS IN ALESSANDRIA IN 1965. GAMMAGLOBULIN IMMUNOPROPHYLAXIS.** *(It.)* Laguzzi, A. (Office Hyg., Alessandria, Italy). *G Mal Infett* 19(6):372-374, 1967.

7410 **PRELIMINARY STUDIES ON PYRUVICEMIA DURING VIRAL HEPATITIS.** *(It.)* Rosmino, G. C. (Clin. Pediat., U. Turin, Italy), G. Baroncelli and C. de Sanctis. *G Mal Infett* 19(6):371, 1967.

7411 **VIRAL HEPATITIS AND HEPATIC COMA.** *(E.)* Bobinac, E. (Med. Ctr., Doboj, Yugoslavia). *Med J (Belgrade)* 90(6):17-24, 1968.

7412 **THE ILCA TEST IN VIRUS HEPATITIS.** *(It.)* Guasco, G. (A. Di Savoia Hosp., Turin, Italy) and L. Bendiscioli. *G Mal Infett* 20(7):669-671, 1968.

7413 **SEQUELAE OF VIRAL HEPATITIS.** *(It.)* Visani, A. (Munic. Hosp., Faenza, Italy), G. Cenni and A. Ferlini. *G Mal Infett* 20(7):687-691, 1968.

7414 **RESULTS OF A LONG-TERM FOLLOW-UP OF AN EPISODE OF HEPATITIS. STATISTICAL EVALUATION OF 194 CASES.** *(It.)* Zanussi, C. (Inst. Infect. Dis., U. Milan, Italy) and C. Banterle. *G Mal Infett* 20(7):693-700, 1968.

7415 **CLINICAL AND FUNCTIONAL EVALUATION OF THE LONG-TERM RESULTS OF VIRAL HEPATITIS IN INFANCY. 96 CASES.** *(It.)* Pasinetti, G. (Cent. Hosp., Bergamo, Italy) and G. Rampinelli. *G Mal Infett* 20(7):676-679, 1968.

7416 **LONG-TERM RESULTS OF VIRAL HEPATITIS. FORTY-NINE CASES TREATED FOR MORE THAN A YEAR AFTER THE ACUTE PHASE.** *(It.)* Merlini, M. ("G. Gaslini" Med. Clin., U. Genoa, Italy), G. Vallarino and A. Galletti. *G Mal Infett* 20(7):671-674, 1968.

7417 **THE OWREN THROMBOTEST IN ACUTE VIRUS HEPATITIS, IN CHRONIC VIRUS HEPATITIS, IN ACUTE ATROPHIC POST-HEPATITIS LIVER, AND IN RELATION TO DIFFERENT THERAPIES.** *(It.)* Matano, F. (Infect. Dis. Clin., U. Naples, Italy), G. Manzillo, T. Ferraro and G. de Stasio. *G Mal Infett* 20(12):963-973, 1968.

7418 **VIRAL HEPATITIS IN THE THIRD TRIMESTER OF PREGNANCY.** *(Pol.)* Smolenska, W. (Gromkowskii Munic. Hosp. Infect. Dis., Wroclaw, Poland) and I. Borzecka. *Przegl Lek* 24(3):373-376, 1968.

7419 **VIRUS ISOLATION IN PATIENTS WITH INFECTIOUS HEPATITIS.** *(Ger.)* Alexander, M. (1st Med. Clin., Free U. Berlin, Germany). *Verh Deutsch Ges Inn Med* 73(4):231-234, 1967.

7420 **CLINICAL-ANATOMICAL PARALLELS IN CIRRHOSIS OF THE LIVER FOLLOWING VIRAL HEPATITIS IN CHILDREN.** *(Rus.)* Tishnina, Ie. N. (N. I. Pirogov 2nd Moscow Med. Inst., USSR), A. S. Ieremeieva and N. I. Soboleva. *Vop Okhr Materin Dets* 12(10):32-36, 196

7421 **CLINICAL-ANATOMICAL PARALLELS IN TOXIC DYSTROPHY OF THE LIVER AS AN OUTCOME OF VIRAL HEPATITIS IN CHILDREN.** *(Rus.)* Tishina, Ie. N. (N. I. Pirogov 2nd Moscow Med. inst., Inst., USSR), N. I. Soboleva and A. S. Ieremeieva. *Vop Okhr Materin Dets* 12(12):43-47, 1967.

7422 **NEW DATA FROM EXPERIMENTAL STUDIES OF THE ETIOLOGY OF VIRAL HEPATITIS.** *(Rus.)* Zhdanov, V. M. (D. I. Ivanovskii Inst. Virol., Moscow, USSR), A. K. Shubladze, I. F. Barinskii and I. V. Dement'iev. *Vestn Akad Med Nauk SSSR* (9):74-82, 1968.

See also: 6747,6769,7201,7263,7420,7445,7494

## Cirrhosis

**7423** **DUAL ORIGIN OF ASCITES IN HEPATIC CIRRHOSIS.** *(E.)* Witte, C. L. (Washington U. Sch. Med., St. Louis, Mo.), M. H. Witte, W. R. Cole, Y. C. Chung, V. R. Bleisch and A. E. Dumont. *Surg Gynec Obstet* 129(5):1027-1033, 1969.

To trace the origin of ascites in hepatic cirrhosis, the protein content of ascitic fluid, plasma, and lymph from the thoracic duct, intestine, and liver was studied in 27 patients (age 28 to 65 yr) with varying stages of cirrhosis. Early in cirrhosis when postsinusoidal obstruction and intrahepatic portal hypertension predominate ascitic fluid and excess thoracic duct lymph are high in protein (48% of plasma levels) and primarily originate from excess high protein hepatic lymph. As the disease progresses, presinusoidal obstruction and extrahepatic portal hypertension assume increasing importance; ascitic fluid and excess thoracic duct lymph are low in protein (15 to 29% of plasma levels) and primarily originate from excess low-protein extrahepatic portal lymph. Ascites which appears after a successful portacaval shunt for esophageal variceal hemorrhage is high in protein (38% of plasma levels) and originates from the liver, while that arising after an occluded shunt is low in protein (10%) and originates from the congested extrahepatic portal bed.

**7424** **GLUCOSE TOLERANCE, FREE FATTY ACID, AND SERUM INSULIN RESPONSES IN PATIENTS WITH CIRRHOSIS.** *(E.)* Berkowitz, D. (Temple U. Hlth. Sci. Ctr., Philadelphia, Pa.). *Amer J Dig Dis* 14(10): 691-699, 1969.

The blood glucose, free fatty acids, and serum insulin responses to a 75 g oral glucose load were studied in 25 cirrhotic patients and the results compared with those obtained in 25 normal control subjects. Twenty-two of the patients with cirrhosis had impaired glucose tolerance. This was associated with elevated free fatty acid levels in 17 instances. Two additional patients had increased free fatty acids with normal glucose tolerance. Hyperinsulinemia was demonstrated in every patient with liver disease, including the 3 with normal glucose tolerance (23 ± 10 milliunits/ml vs 9 ± 9 milliunits/ml in controls). Although the exact mechanism for the increased insulin response to glucose is not clear, the concurrence of hyperglycemia and hyperinsulinemia is best explained by insulin resistance. The elevated free fatty acids present in most of these patients may contribute to this insulin insensitivity.

**7425** **RHEUMATOID FACTOR, MUCOPROTEINS, SIALIC ACID, AND GREENSPAN'S REACTION IN HISTOLOGICALLY CONFIRMED FATTY LIVER, CHRONIC HEPATITIS, AND CIRRHOSIS.** *(Cz.)* Hrnčíř, Z. (Med. Fac., Charles U., Hradec Kralove, Czechoslovakia), V. Nerad, B. Fixa, V. Skaunic, O. Komárková and V. Herout. *Cas Lek Ces* 107(8):223-228, 1968.

Studies were made of 80 patients with chronic liver diseases, the diagnosis of which was confirmed by liver biopsy. These patients consisted of 20 with fatty liver, 30 with chronic hepatitis, 30 with cirrhosis, together with 20 controls with no histological evidence of liver disease. Patients with clinical symptoms of collagen diseases were excluded. Rheumatoid factor, determined by a modification of Singer's latex-fixation method, was found in titers of 1:160 or higher in 20% of the patients with chronic liver disease but in none of the controls. The presence of rheumatoid factor did not depend upon the type of liver disease and was of no prognostic value. Low serum mucoprotein levels, in some cases below 2 mg%, were found in patients with cirrhosis and chronic hepatitis, but these levels were not significantly lower than in the control group. Serum sialic acid values were essentially the same in patients with chronic liver disease and in the controls. Values obtained with Greenspan's reaction were significantly lower among patients with chronic hepatitis than among those with fatty liver and the controls. There was a significant inverse relation between hypergammaglobulinemia and the results of Greenspan's reaction (when they were higher than 10 U).

**7426** **THE FREQUENCY OF ASTROGLIAL CHANGES ("LIVER GLIA") IN LIVER DISEASES, ESPECIALLY CIRRHOSIS OF THE LIVER, AND THEIR DEPENDENCE ON THE LIVERS FUNCTIONAL CONDITION.** *(Ger.)* Lahl, R. (Inst. Pathol., Med. Acad., Magdeburg, Germany). *Zbl Allg Path* 110(216):518-545, 1967.

Between 1963 and 1965, 150 brains of patients (88 males, 62 females) who died from various liver diseases were studied for atypical astroglia. In 121 cases the liver disease was primary and in 29 secondary. The atypical astroglia were differentiated into 4 groups (I-IV). In 93 cases (62%) liver glia could be detected. These glial changes were not age or sex dependent nor were they related to the type (acute or chronic, primary or secondary) of disease process. The functional state of the liver did, however, appear significant: especially with insufficiency and portal hypertension. In 20 cases of cirrhosis without symptoms of portal hypertension or insufficiency, only 4 instances of liver glia were detected. The number of positive brain findings in cirrhosis diagnosed at autopsy was 80.5% in contrast to 50.7% in those with portal hypertension.

**7427** **NUTRITIONAL CIRRHOSIS IN RHESUS MONKEYS: ELECTRON MICROSCOPY AND HISTOCHEMISTRY.** *(E.)* Ruebner, B. H. (Sch. Med. U. California, Davis), J. Moore, R. B. Rutherford, A. M. Seligman and G. D. Zuidema. *Exp Molec Path* 11(1):53-70, 1969.

A choline-deficient low protein diet was fed to 12 Rhesus monkeys for 2 yr. Eight of the animals died, most of them during the latter part of the first year. Mortality among males was higher than in females. Three of the 4 surviving animals developed fatty metamorphosis followed by cirrhosis. Eight sequential liver biopsies from each of these 12 animals were studied. Control specimens showed paracrystalline mitochondrial inclusions in the hepatocytes and cytoplasmic crystalloids in the endothelial cells of the hepatic sinusoids and portal vessels. The significance of both structures remains unknown. Striking cytoplasmic vacuoles, possibly produced by anoxia during surgical liver biopsy, were observed in some specimens. The hepatocytes of the animals on the experimental diet, in addition to fatty change, showed mitochondria with bizarre shapes, circular cristae or increased electron opacity. Focal cytoplasmic degradation and Golgi dilatation were prominent.

Microvilli developed along the intercellular spaces and became more prominent in the space of Disse. Basement membranes which were rarely continuous could be seen between hepatocytes and sinusoidal lining cells. In Disse spaces and intercellular spaces microfibrils and increased collagen fibers developed. In the later biopsies septa were formed which contained a higher proportion of typical collagen to microfibrils than the fibrillar material in the Disse spaces. The hepatocytes in the cirrhotic nodules stained more strongly for glycogen and were more active in nearly all histochemical enzyme reactions than the hepatocytes in non-nodular areas. The nodules may therefore differ metabolically from the rest of the parenchyma.

**7428 FUNCTIONAL AND MORPHOLOGICAL OBSERVATIONS IN HEPATIC CIRRHOSIS BY USING 1-$^{35}$S-METHIONINE, $^{131}$I AND $^{198}$Au.** *(It.)* Zucali, R. (Inst. Radiol., U. Milan, Italy), F. Confalonieri and F. Boioli. *Minerva Med* 58(76):3227-3234, 1967.

Among 20 cases of hepatic cirrhosis examined with $^{35}$S-methionine (0.5 μCi/kg body weight i.v.), the radioactive excretion time was clearly pathological in 16. The limitations of the method are based on the possibility that the regeneration process of the hepatocytes could disguise the functional deficiency of other areas of the parenchyma, and that the altered conditions of the portal circle could reduce the clearance of 1-$^{35}$S-methionine. Tests with $^{131}$I CA, colloidal albumin (25-30 μCi i.v.) records variations in radioactivity of the hepatic and splenic areas, evaluates the vascularization of the liver and the spleen, and the radioactive uptake by the hepatic and splenic reticuloendothelial cells. Scintigraphy with colloidal $^{198}$Au reveals significant topographic and morphologic changes, corresponding to the structural microscopic and macroscopic alterations in cirrhosis. Hepatomegaly was frequently observed but a reduction of liver volume was rarely found, and mainly in severe atrophic cirrhosis.

**7429 FECAL EXCRETION OF POLYVINYLPYRROLIDINE $^{131}$I IN LIVER CIRRHOSIS.** *(E.)* Marinković, M. (Med. Fac. U. Zagreb, Yugoslavia), O. Miočka and L. Kallai. *Digestion* 2(3):172-178, 1969.

In 13 patients with compensated and in 35 patients with decompensated cirrhosis of the liver, the $^{131}$I-polyvinylpyrrolidone (PVP) test was applied and the results were compared with a group of 38 control patients with diseases in which protein losing enteropathies do not occur. In patients with compensated cirrhosis of the liver the excreted quantity of PVP was within normal limits (0.175-1.15%, average, 0.49%). In 15 patients with decompensated cirrhosis of the liver, PVP increased in the stool after 5 days (0.18-5.58%, average, 1.06%). No correlation between excreted PVP and the level of plasma albumin was found. Secondary protein-losing enteropathies exist only in decompensated cirrhosis of the liver, and then more frequently in the more serious cases.

**7430 CLEARANCE OF HEPATOTROPIC DYES IN CIRRHOSIS – RELATIONSHIPS BETWEEN PORTAL HYPERTENSION AND CLEARANCE AND PLASMA VOLUME OF B.S.P. AND I.C.G.** *(Fr.)* Lefebvre, M. (St. Luc Hosp., Montreal, Canada), G. Joubert, D. Marleau, J. G. Joly, J. Bernier, P. Lavoie and A. Viallet. *Union Med Canada* 98(6): 925-933, 1969.

A method is presented for evaluation of the importance of portal hypertension in nonicteric cirrhosis based on determination of clearance and plasma volume of bromsulphalein (BSP) and indocyanine green (ICG). In 17 patients, with compensated cirrhosis histologically diagnosed, the free portal pressure (FPP), the blocked suprahepatic pressure, the free suprahepatic pressure (FSP), the blocked suprahepatic pressure, the free suprahepatic pressure (FSP) were determined by means of umbilical, portal and suprahepatic catheterism, and the portosystemic gradient (PSG) calculated. BSP (5 mg/kg) and ICG (0.5 mg/kg) were injected and blood samples obtained 3, 6, 9, 12, 15 and 20 min later, and C and PV were calculated. A significant negative correlation was demonstrated between ICG clearance and FPP ($p < 0.05$), between ICG clearance and PSG ($p < 0.01$), between BSP and FPP ($p < 0.05$) and between BSP clearance and PSG ($p < 0.05$). A significant positive correlation was demonstrated between ICG plasma volume and FPP ($p < 0.05$), between ICG plasma volume and PSG ($p < 0.01$), between BSP plasma volume and FPP ($p < 0.05$), and between BSP plasma volume and PSG ($p < 0.01$).

**7431 THE BEHAVIOR OF DESOXYRIBONUCLEIC ACID (DNA) AND NUCLEAR VOLUME OF HUMAN HEPATOCYTES IN LIVER CIRRHOSIS.** *(It.)* Gacci, G. (Inst. Gen. Clin. Med., U. Bologna, Italy), A. M. Casali, R. F. Guaragna and G. Cavalli. *Fegato* 15(1):5-21, 1969.

The nuclear content of DNA was assayed by a histophotometric technique in hepatocytes obtained from liver biopsies of 5 cirrhotic patients and compared with the results obtained from 2 normal liver biopsies. In 2 cases of cirrhosis the average nuclear content of DNA was increased 11% and 14%, resp. compared to the normal "diploid" value. The average values of the DNA content of "tetraploid" nuclei did not vary significantly, although in 3 cases the percentage of such nuclei was increased. In all, nuclear volumes were distributed, as in normal cells, according to a polymodal frequency curve. An increase in average nuclear volume was not directly related to a significant increase in DNA content. Although the clinical and laboratory findings of the cirrhotic patients were similar, there was no uniform behavior in nuclear volume, average nuclear content of DNA or DNA/nuclear volume ratio. Although DNA content and nuclear volume are variable in cirrhosis and often differ from normal controls, they are not sensitive indices of the seriousness or prognosis of the disease.

**7432 SEROLOGICAL DIAGNOSIS OF PRIMARY BILIARY CIRRHOSIS: A POTENTIAL CLUE TO PATHOGENESIS.** *(E.)* Kantor, F. S. (Yale U. Sch. Med., New Haven, Conn.) and G. Klatskin. *Trans Ass Amer Physician* 80:267-274, 1967.

**7433 HEMOCHROMATOSIS AND RED WINE.** *(E.)* Perman, G. (Fate Bene Fratelli Hosp., Brescia, Italy). *Acta Med Scand* 182(3):281-284, 1967.

**7434 CHANGES OF THE ELECTROLYTIC AND ACIDO-BASIC BALANCE DURING DIURETIC TREATMENT IN PATIENTS WITH LIVER CIRRHOSIS AND CONGESTIVE HEART FAILURE.** *(It.)* Solinas, E. (Inst.

Special Med. Pathol. Clin. Methodol., U. Perugia, Italy), T. Todisco and C. Porcellati. *Riforma Med* 82(18):486-492, 1968.

7435 **SCINTIGRAPHY WITH RADIOACTIVE COLLOIDAL GOLD IN ALCOHOLIC HEPATITIS.** *(Fr.)* Magnenat, P. (Med. Clin. U. Lausanne, Switzerland), A. di Stefano, G. A. Borel and B. Delaloye. *Rev Int Hepat* 18(2):401-409, 1968.

7436 **RADIOACTIVE ISOTOPES IN DIAGNOSIS OF SUBACUTE ALCOHOLIC AND CIRRHOTIC HEPATITIS.** *(Fr.)* Desgrez, A. (Frédéric-Joliet Hosp. Svc., Paris, Paris, France) and S. Veyne. *Rev Int Hepat* 18(2):389-400, 1968.

7437 **THE DEVELOPMENT OF POSTSHUNT HEMOCHROMATOSIS–PARENCHYMAL SIDEROSIS IN PATIENTS WITH CIRRHOSIS OCCURRING AFTER PORTASYSTEMIC SHUNT SURGERY. A REVIEW OF THE LITERATURE AND REPORT OF TWO ADDITIONAL CASES.** *(E.)* Ecker, J. A. (Santa Barbara Med. Clin., Calif.), P. A. Grey, J. E. McKittrick and D. R. Dickson. *Amer J Gastroent* 50(1):13-29, 1968.

7438 **EFFECT OF ANGIOTENSIN II ON URINARY SODIUM EXCRETION IN NORMAL SUBJECTS AND IN CIRRHOTIC PATIENTS.** *(E.)* Ajzen, H. (Paulista Med. Sch., São Paulo, Brazil), U. Andrade, J. P. Cipullo, D. R. Sustovich and O. L. Ramos. *Amer J Med Sci* 256(6):373-379, 1968.

7439 **HIGH DIGESTIVE HEMORRHAGES IN CIRRHOTIC PATIENTS. (139 PATIENTS).** *(Fr.)* Lataste, J. (Hôtel Dieu, Paris, France) and B. Robin. *Presse Med* 76(7):307-309, 1968.

7440 **THE EFFECT OF CHRONIC ALCOHOLISM ON KETOSTEROID AND HYDROXYCORTICOID EXCRETION.** *(E.)* Krengel, B. (Johannesburg, South Africa). *S Afr Med J* 42(4):83-84, 1968.

7441 **CHRONIC INFLAMMATORY LIVER DISEASES AND ALCOHOL INGESTION.** *(Ger.)* Lelbach, W. K. (Med. U. Clin., Bonn, Germany). *Deutsch Med J* 20(16): 507-517, 1969.

7442 **WATER AND ELECTROLYE DISORDERS IN LIVER CIRRHOSIS.** *(Fr.)* Levy, V. G. (Saint-Antoine Hosp., Paris, France) and J. Caroli. *Ann Med Intern* 120(6/7):405-418, 1969.

7443 **THE LYMPHATIC DRAINAGE IN PORTAL HYPERTENSION. [CASE REPORT]** *(E.)* Mégevand, R. (Canton Hosp., Geneva, Switzerland). *Digestion* 2(4):245-247, 1969.

7444 **AN AUTOPSY CASE OF PRIMARY BILIARY CIRRHOSIS COMPLICATED WITH CRYPTOCOCCOSIS.** *(Jap.)* Fukuoka, Y. (Nara Med. U., Japan), T. Sakamoto, S. Fukuda, S. Fukui, K. Nakata, H. Kitamura and O. Harigane. *J Nara Med Ass* 20(2):152-158, 1969.

7445 **A CASE OF HEPATIC CIRRHOSIS WITH HYPERPROTEINEMIA AND BETA-2M-MACROGLOBULINEMIA DIAGNOSED AFTER INFECTIOUS HEPATITIS.** *(Pol.)* Matuszak, J. (Dept. Infect. Dis., Warsaw Acad. Med., Lodz, Poland). *Przegl Lek* 23(7):586-587, 1967.

7446 **THE INCIDENCE OF LIVER CIRRHOSIS IN DIABETES MELLITUS.** *(E.)* Roštlapil, J. (Fac. Med., Charles U., Prague, Czechoslovakia) and M. Zrůstová. *Acta Diabet Lativa* 6(1):37-55, 1969.

7447 **MASSIVE ASCITES IN PORTOCAVAL ANASTOMOSIS. [CASE REPORT]** *(E.)* Koumans, R. K. J. (Zuider Hosp., Rotterdam, Netherlands) and A. Houwing. *Folia Med Neerl* 12(4):143-149, 1969.

7448 **ALTERED PATHWAYS OF URINARY CORTICOSTEROID EXCRETION IN LIVER DISEASE STUDIED BY A CLINICAL LABORATORY METHOD.** *(E.)* Bacchus, H. (Providence Hosp., Washington, D. C.). *Clin Chem* 15(3):237-247, 1969.

7449 **A CASE OF ACANTHOCYTOSIS IN CHOLESTATIC HEPATIC CIRRHOSIS WITH HEMOLYTIC ANEMIA.** *(It.)* Masera, G. (Clin. Pediat. U. Milan, Italy), E. Livini and R. Carnevali. *Minerva Pediat* 21(24): 1063-1069, 1969.

7450 **PARADOXICAL ELEVATION OF SERUM CHOLESTEROL BY CLOFIBRATE IN PATIENTS WITH PRIMARY BILIARY CIRRHOSIS. [CASE REPORT]** *(E.)* Schaffner, F. (Mount Sinai Hosp., New York, N. Y.). *Gastroenterology* 57(3):253-255, 1969.

7451 **SERUM CHOLESTEROL IN PRIMARY BILIARY CIRRHOSIS.** *(E.)* Schaffner, F. (Mount Sinai Sch. Med., The City U., New York, N. Y.). *Gastroenterology* 56(6):1111-1113, 1969.

7452 **POST-HEPATIC CIRRHOSIS OF THE LIVER. A FOLLOW-UP STUDY.** *(E.)* Franken, F. H. (Ist Med. Clin., U. Dusseldorf, Germany), D. Amelung, P. Garke, D. Pohle, H. Liebermeister and F. J. Deupmann. *German Med Monthly* 12(7):305-311, 1967.

7453 **THE MANAGEMENT OF HEPATIC CIRRHOSIS.** *(E.)* Zeegen, R. (St. Bartholomew Hosp., London, England) and A. M. Dawson. *Brit J Clin Pract* 22(4):147-154, 1968.

7454 **A SELECTIVE PORTACAVAL SHUNT.** *(E.)* Inokuchi, K. (Kyushu U. Med. Sch., Fukuoka, Japan). *Lancet* 2(7558):51-52, 1968.

7455 **EFFECTS OF DIETARY PROTEIN ON THE LIVER OF RATS IN EXPERIMENTAL CHRONIC ALCOHOLISM.** *(E.)* Porta, E. A. (Res. Inst. Hosp. Sick Child., Toronto, Canada), O. R. Koch, C. L. A. Gomez-Dumm and W. S. Hartroft. *J Nutr* 94(4):437-446, 1968.

7456 **ZIEVE'S SYNDROME.** *(Dut.)* Miserez, J. (Stuivenberg Hosp., Antwerpen, Netherlands), A. Macken and J. Tverdy. *Nederl T Geneesk* 112(4):141-147, 1968.

7457 **DISORDERS OF GLUCOSE REGULATION IN CHRONIC ALCOHOLIC LIVER DISEASE.** *(Fr.)* Darnis, F. (Beaujon Hosp., Clichy, France), A. Mossé, H. Chimenes, M. L. Delorme and N. Amigues. *Sem Hop (Paris)* 43(47):2929-2940, 1967.

7458 **KLINEFELTER'S SYNDROME AND CIRRHOSIS OF THE LIVER.** *(E.)* Chhetri, M. K. (S.S.K.M. Hosp., Calcutta, India) and B. De. *J Indian Med Ass* 49(4):179-181, 1967.

7459 **DISTURBANCES OF THE HEMATOPOIETIC SYSTEM IN PATIENTS WITH CIRRHOSIS OF THE EGEENNE REGION. STUDY OF 50 CASE REPORTS.** *(Fr.)* Tartaroglu, N. (Clin. Med., U. Aegean, Izmir, Turkey) and V. Göksel. *Rev Med Moyen Orient* 24(3):201-206, 1967.

7460 **MICROVASCULARIZATION OF THE CIRRHOTIC LIVER.** *(Fr.)* Caulet, T. (Paris, France), J. Diebold, A. Lavrillier and M. Reynes. *Rev Int Hepat* 17(5):377-410, 1967.

7461 **SOME DOCUMENTS IN AMINO ACIDURIA IN COMMON CIRRHOSIS IN THE AFRICAN.** *(Fr.)* Clerc, M., A. Bourgeade and E. Bertrand. *Med Afr Noire* 14(11):569, 1967.

7462 **CIRRHOSIS OF METABOLIC ORIGIN IN INFANTS.** *(Fr.)* Morin, C. (Hosp. Sick Child., Toronto, Canada) and A. Sass-Kortsak. *Union Med (Canada)* 96(11):1376-1383, 1967.

7463 **ETHANOL AND THE LIVER.** *(E.)* Hoenig, V. (Dept. Intern. Med., Charles U., Prague, Czechoslovakia). *Brit J Addict* 62(3/4):281-286, 1967.

7464 **FORMATION OF MONOUNSATURATED FATTY ACIDS IN FATTY LIVER.** *(E.)* Imai, Y. (Hokkaido U. Sch. Med., Sapporo, Japan) and O. Mitsuhashi. *J Biochem (Tokyo)* 61(6):712-718, 1967.

See also: 6406,6682,6780,7257,7287,7425

## Gallbladder and Biliary Tract Diseases

7465 **RECURRENT CHOLESTASIS DURING PREGNANCY.** *(It.)* Cavalli, G. (Inst. Clin. Med. Gen., U. Bologna, Italy), F. B. Bianchi, G. Bacci and A. M. Casali. *Fegato* 15(1):73-96, 1969.

A case (31 yr old) of recurrent cholestasis during pregnancy is presented. The history showed jaundice at the age of 6. At the age of 29, during the 4th month of pregnancy, the patient presented signs of jaundice with intense itching. One month after the delivery (at the 8th month of pregnancy), jaundice and itching increased in intensity. Choledocostomy and drainage by Kehr's tube of the biliary ducts were performed; the patient recovered 8 months later. One yr later, at the 4th month of the 2nd pregnancy, a relapse was observed; the patient aborted. Jaundice and itching lasted 10 months, with values of bilirubinemia ranging between 10-15 mg%. At the exit from the hospital the laboratory examinations were almost normal. Histological examination by needle biopsy performed 2 months after the abortion showed signs of an intense cholestasis. The biliary capillaries showed a significant dilatation, presence of cellular flaps in the lumen, splitting of the microvilli. At the level of the intrahepatic biliary ducts, study of the serial sections showed lesions of the tubuli: nuclear pyknosis, vacuolization, splitting of the epithelial seat. No specific alterations were observed in electron microscopy. No precise etiology could be determined.

7466 **EXPERIMENTAL PARTIAL EXTRA-HEPATIC CHOLESTASIS. III. CHOLESTEROL, CALCIUM, BILIARY SALTS, ADIPIODONE, ANTIBIOTICS.** *(Fr.)* Besançon, F. (Bichat Hosp., Paris, France), C. Rozé, M. Souchard, P. Barbier and C. Debray. *Path Biol (Paris)* 16(5/6):287-295, 1968.

Incomplete cholestasis with 50% reduction of the bile flow was carried out in male Wistar rats anesthetized with urethane (1.2 g/kg) injected i.m. The initial concentration of bilirubin (100 g/liter) increased to 152, 235, and 330% resp. after 1, 2, and 3 hr. The concentrations of cholesterol, calcium and biliary salts were not modified. After injection of cholic acid the concentration of biliary salts increased to 174% of the initial value. Adipiodone, a biliary contrast medium, (50 mg) appeared in the bile 8 min after injection in free secretion, and after 12 min in incomplete cholestasis. A half dose of Adipiodone was eliminated after 33 and 129 min resp., in free secretion and with incomplete cholestasis. The concentration of bilirubin decreased after Adipiodone particularly after 20-30 min and the differences between the initial concentration were statistically significant. After injection of oxytetracycline (5 mg) the biliary concentration at the 2nd hr was 13 μg/ml in free secretion, and 5 μg/ml in incomplete cholestasis. The histological aspect of the liver was unchanged after 6 hr of incomplete cholestasis.

7467 **INDIRECT CHOLANGIOGRAPHIC SIGNS OF BILIARY OBSTRUCTION.** *(Cz.)* Huslarová, A. (Fac. Polyclin., Charles U., Prague, Czechoslovakia), M. Kovářová, F. Horáček and M. Keclík. *Cas Lek Ces* 107(17):497-501, 1968.

An analysis was made of 188 i.v. cholangiograms run on 106 patients (22 men and 84 women) with diseases of the biliary tract. Surgery (cholecystectomy, choledocholithotomy, papillosphincterotomy) was later performed in 99 cases. On cholangiograms the width of the common bile duct was less than 8 mm in only 4.2% of the patients with bile duct obstructions. Statistical analysis showed that there was no significant correlation between the density of the shadow and the width of the bile duct or the presence of a bile duct obstruction. The period during which the contrast medium was seen in the bile ducts was about the same or somewhat longer in patients with bile duct obstructions than in those with cholecystolithiasis. The kidney was never visualized in patients with cholecystolithiasis but was seen in 5 patients with bile duct obstructions. The density of the shadow was greater 60 min after injection of the contrast medium than 120 min after injection in 2/3 of the patients in both groups and was about the same in 1/3. The hepatic duct was visualized in 1/2 of the patients with cholecystolithiasis but was not dilated in any of them while in patients with bile duct obstructions it was visualized in 2/3 and dilated in 10.

7468 **OPERATIVE CHOLANGIOGRAPHY.** *(E.)* Acosta, J. M. (Massachusetts Gen. Hosp., Boston), W. T. Fotheringham, L. O. Ruiz and G. L. Nardi. *Arch Surg (Chicago)* 99(1):29-32, 1969.

An unselected 10 yr series of 593 patients undergoing cholecystectomy and operative cholangiography was analyzed. The method was assessed by comparing its results with those of conventional exploration. Operative findings (including mechanical exploration of common duct, biopsies, autopsies) and postoperative follow-up were used as controls for both methods. The results were statistically analyzed and showed that operative cholangiography (only 8 of 224 true abnormals or 1.7% were missed) was more efficient than conventional exploration (61 of 222 true abnormals or 15.7% were missed) in revealing common-bile-duct pathology. The results of cholangiography were almost identical with those obtained by the control methods.

7469 **CHOLEDOCHAL CYST–A REPORT OF NINE CASES AND REVIEW OF THE LITERATURE.** *(E.)* Lee, S. S. (Yonsei U. Coll. Med., Seoul, Korea), P. C. Min, G. S. Kim and P. W. Hong. *Arch Surg (Chicago)* 99(1):19-28, 1969.

Nine cases (7 females, 2 males with an age range of 10 months to 22 yr) of congenital choledochal cyst observed during a 7 yr period are reported, 88 cases are newly analyzed, and a total of 500 cases are reviewed. The disease occurs principally in females and in the young. The characteristic pathologic finding is a large cystic dilatation of the common bile duct; the duct proximal to the cyst is usually dilated, but the distal end of the ductus is constricted. Diagnosis can be established or suspected in the presence of the classic triad–jaundice, pain and an abdominal mass, particularly when these appear intermittently. The procedure of choice is anastomosis of the cystic dilatation to the intestinal tract, although recently, removal of the cyst has been increasing. Of the 9 cases, 1 patient who had had a choledochocystoduodenostomy had to have a choledochocystojejunostomy of the Roux-en-Y type because of the recurrence of pain and jaundice due to a stricture. The anastomosis should be made at the dependent portion of the cyst and be of a size which is adequate for proper drainage. All 9 cases did well postoperatively. In the 97 cases analyzed the operative mortality in 91 was 5.2% (5 deaths).

7470 **EVALUATION OF THE MANAGEMENT OF ACUTE CHOLECYSTITIS.** *(E.)* Payne, R. A. (North Middlesex, Hosp., London, England). *Brit J Surg* 56(3):200-203, 1969.

Acute cholecystitis was diagnosed in 398 of the 924 cases of gallbladder surgery during a 14 yr period. The 398 cases were reviewed to assess the advantages of early surgical treatment (133) for acute cholecystitis and compared to conservative management (265). Hospital stay increased at least 4 days for all forms of therapy after the age of 70. The time spent in hospital was halved by early surgical treatment. The common complications were respiratory (14%) and wound infections (5%). The incidence among those having early surgical treatment for acute cholecystitis was lower than in those treated conservatively. There were no deaths in a group of 133 patients treated by early cholecystectomy. Three deaths occurred in the conservatively managed patients who subsequently underwent cholecystectomy and 4 deaths in the conservatively managed group who, in addition to an interval cholecystectomy, had their common bile duct explored.

7471 **A VAGAL FACTOR IN CHOLECYSTITIS.** *(E.)* Schein, C. J. (Albert Einstein Coll. Med., New York, N. Y.), R. G. Rosen, A. Warren and M. L. Gliedman. *Surgery* 66(2):345-352, 1969.

Acute experiments to evaluate the effect of vagectomy on the biliary sphincters and chronic experiments to study the same effects using human cholesterol gallstones were performed in healthy adult dogs. Passage pressure across the cystic duct-choledochal junction was immediately reduced 42% and across the choledochoduodenal junction 28%. Late changes in the gallbladder were characterized by dilatation, fibrotic thickening of the wall, and infiltration by chronic inflammatory cells. Gallbladder bile varied from increased viscosity and sludge to the appearance of pigment particles and the formation of 3-4 mm biliary concretions. These changes often elude palpatory and roentgen examination of the intact gallbladder. Severe acute cholecystitis was provoked in dogs with vagectomized gallbladders having a large human cholesterol stone. Removal of the stone left the gallbladder with chronic inactive cholecystitis. The addition of vagectomy to cholelithiasis provoked acute cholecytitis. These biliary sequelae of experimental vagectomy in the dog suggest that a functionally or surgically induced vagal disorder may also be implicated in human biliary disease.

7472 **PRIMARY SCLEROSING CHOLANGITIS AND OBLITERATIVE CHOLANGITIS.** *(E.)* Cutler, B. (Massachusetts Gen. Hosp., Boston) and G. A. Donaldson. *Amer J Surg* 117(4):502-511, 1969.

Of 291 cases of cholangitis encountered during a 20 yr period, 8 instances (7 male, 1 female) of fibrosis and stenosis of the biliary tract without calculi, malignancy, previous surgery or primary biliary cirrhosis were found. Six patients were less than 35 yr of age. Symptoms were recurrent in 4. The final diagnosis was made at laparotomy in each case, as the laboratory findings were nonspecific. Three patients had a history of allergy, 3 of ulcerative colitis, 4 of duodenal ulcers, 2 of chronic pancreatitis and 2 were without associated disease. Autoimmune factors may have played a role in the etiology. With primary sclerosing cholangitis, a bypass procedure and antihistamine, steroids and possibly antibody serum are recommended as therapy; for obliterative cholangitis, a choledochostomy, antibiotics and cholegogues. There was 1 operative death among the 8 and 1 died subsequently of cirrhosis.

7473 **CHOLECYSTECTOMY FOLLOWING A NORMAL CHOLECYSTOGRAM.** *(E.)* de Muth, W. E. Jr. (Sch. Med. U. Pennsylvania, Philadelphia). *Amer Surg* 35(9): 653-655, 1969.

Normal cholecystography was noted in 28 (26 female, 2 male, age range 6-75 yr) of 1321 cholecystectomy patients in a 15 yr review. Significant pain was present preoperatively in all. At surgery, the gallbladder appeared normal in 23. Pathology included chronic cholecystitis (17), cholesterosis (12), biliary calculi (3), polyps (2), adenomyosis (1), acute cholecystitis (1), multiple abnormalities (11), and no abnormalities (4). Cholesterin crystals were found in the duodenal drainage of 10 of 22 patients examined. Twenty of the 28 patients had no symptoms postoperatively.

7474 **FIVE CASES OF CALCIFICATION IN THE GALLBLADDER.** *(Rus.)* Grezhev, A. F. (A. M. Gorkii Donetsk Med. Inst., USSR) and V. V. Minin. *Vestn Khir Grekov* 99(11):124-125, 1967.

7475 **FUNCTIONAL ANATOMY IN THE DEVELOPMENT OF OBSTRUCTIVE JAUNDICE IN THE NEW BORN AND INFANT.** *(Fr.)* Gubern Salisachs, L. (Barcelona, Spain). *Ann Chir Infant* 8(3):201-220, 1967.

7476 **DIVERTICULOSIS OF THE GALLBLADDER. THE FUNDAL ADENOMA.** *(E.)* Beilby, J. O. W. (Middlesex Hosp., London, England). *J Exp Path* 48(4):455-461, 1967.

7477 **CONGENITAL CYSTS OF BILIARY DUCTS. [CASE REPORT]** *(Cz.)* Bencúr, J. M. (Surg. Clin., Comenius U., Bratislava, Czechoslovakia), K. Koren and J. Somodi. *Cesk Radiol* 22(6):413-416, 1968.

7478 **CHIRURGIA DELLE VIE BILIARI (SURGERY OF THE BILIARY DUCTS).** *(It.)* Trivellini, A. Bologna, Cappelli, 1968.

7479 **PROPHYLAXIS AND TREATMENT OF GALLSTONE DISORDERS.** *(Ger.)* Thurnher, B. (Gen. Polyclinic., Vienna, Austria). *Wien Klin Wschr* 80(33/34) 631-634, 1968.

7480 **SPONTANEOUS BILIARY PERITONITIS IN INFANCY. [CASE REPORT]** *(E.)* Hammar, B. (Harari Cent. Hosp., Salisbury, Rhodesia) and E. Sanders. *J Pediat Surg* 3(1):84-86, 1968.

7481 **INTRAPERITONEAL HEMORRHAGE AS A COMPLICATION OF ACUTE RUPTURED CHOLECYSTITIS. [CASE REPORT]** *(E.)* Naqvi, M. A. (City Hosp. Ctr. Elmhurst, New York, N. Y.), C. A. Danese and D. A. Dreiling. *J Mount Sinai Hosp NY* 35(4):396-407, 1968.

7482 **STATISTICAL ASSESSMENT OF THE FREQUENCY OF BILIARY CALCULOSIS IN PATIENTS WITH GASTRIC OR DUODENAL ULCER.** *(It.)* Morato, A. (Mauriziano Umberto I Hosp., Turin, Italy), M. Tappi, E. Giovanelli and M. Sgarbi. *Minerva Med* 60(65/66): 3018-3022, 1969.

7483 **CHOLEDOCHOLITHIASIS IN A GIRL 12 YEARS OF AGE.** *(Pol.)* Wóstowicz, M. and Z. Lubańska. *Pol Przegl Chir* 41(4):435-439, 1969.

7484 **ACTION OF SOME ANTIBIOTICS ON THE EXTRA-HEPATIC BILIARY TRACT. VI. SPIRAMYCIN.** *(E.)* Benzi, G. (Dept. Pharmacol., U. Pavia, Italy), A. Crema, F. Berte and E. Arrigoni. *Arch Int Pharmacodyn* 180(1):19-27, 1969.

7485 **COMPOSITION OF GALLSTONE AND BILE: SPECIES DIFFERENCE.** *(E.)* Nakayama, F. (Kyushu U. Fac. Med., Fukuoka, Japan). *J Lab Clin Med* 73(4):623-630, 1969.

7486 **A TECHNIQUE OF REPAIR OF STRICTURE OF THE BILE DUCT.** *(E.)* Saypol, G. M. (Long Island Jewish Hosp.-Queens Hosp. Ctr. Affiliation, New York) and G. Kurian. *Surg Gynec Obstet* 128(5):1071-1076, 1969.

7487 **LIVER STRUCTURE IN PATIENTS WITH CHOLEDOCHODUODENOSTOMY.** *(E.)* Keclík, M. (Charles U. Polyclin., Prague, Czechoslovakia), A. Huslarová and B. Bednář. *Digestion* 2(4):230-236, 1969.

7488 **DISSOLUTION AND FLUSHING TECHNICS FOR REMOVAL OF RETAINED COMMON DUCT STONES. [CASE REPORT]** *(E.)* Sasson, L. (Jewish Mem. Hosp., Bronx, N. Y.). *Amer J Gastroent* 51(5):394-409, 1969.

7489 **CHOLEDOCHAL CYST. A REPORT OF TWO CASES AND REVIEW OF THE LITERATURE.** *(E.)* Shah, R. C. (Gulabbai Gen. Hosp., Ahmedabad, India), A. B. Mehta and J. B. Haribhakti. *Amer J Gastroent* 51(3): 227-234, 1969.

7490 **RADIOLOGIC SEMINAR LXXXVII: GAS IN THE BILIARY SYSTEM.** *(E.)* Williams, K. O. (Rankin Gen. Hosp., Brandon, Miss.). *J Mississippi Med Ass* 10(9):410-411, 1969.

7491 **ASCARIASIS OF THE COMMON BILE DUCT. DIAGNOSIS DURING OPERATIVE CHOLANGIOGRAPHY.** *(It.)* Lutman, M. (Udine Munic. Hosp., Italy) and T. Tassini. *Quad Radiol* 32(4):649-656, 1967.

7492 **SOME OBSERVATIONS ON CASES WITH CHRONIC CHOLECYSTITIS AND CHOLELITHIASIS.** *(E.)* Raha, P. K. (Inst. Postgrad. Med. Ed. Res., Calcutta, India) and B. K. Aikat. *J Indian Med Ass* 49(4): 157-162, 1967.

7493 **METACHROMATIC LEUKODYSTROPHY. A CAUSE OF CHOLELITHIASIS IN CHILDHOOD. [CASE REPORT]** *(E.)* Dalinka, M. K. (Wilford Hall USAF Hosp., Lackland Air Force Base, Tex.), R. A. Rosen, R. J. Kurth and V. G. Hemming. *Amer J Dig Dis* 14(8):603-606, 1969.

7494 **PRIMARY CHOLEDOCHITIS AS A COMPLICATION OF INFECTIOUS HEPATITIS.** *(Pol.)* Tkacz, B. (Acad. Med., Lodz, Poland) and J. Fabianowski. *Przegl Lek* 23(4):378-380, 1967.

7495 **LIVER FLUKE IN THE COMMON BILE DUCT. [CASE REPORT]** *(E.)* O'Grady, J. F. (St. Vincent's Hosp., Dublin, Ireland) and T. C. J. O'Connell. *J Irish Med Ass* 62(386):297-299, 1969.

7496 **HYDROPS OF THE GALLBLADDER IN A NEWBORN INFANT. [CASE REPORT]** *(E.)* Scobie, W. G. (Royal Hosp. Sick Child., Glasgow, Scotland) and J. F. R. Bentley. *J Pediat Surg* 4(4):457-459, 1969.

7497 **CARCINOMA OF THE GALLBLADDER.** *(Pol.)* Karwowski, A. (2nd Surg. Clin., Warsaw, Poland), B. Rybaczek, E. Synowiedzka, E. Ruszkowska, A. Korzeniowska and M. Krawczyk. *Pol Tyg Lek* 24(21): 797-801, 1969.

7498 **HYPERPLASTIC CHOLECYSTOSIS.** *(Sp.)* Zubillaga, R. (Cent. Hosp., Barquisimeto, Venezuela), H. R. Doehnert and A. V. Encinoza. *GEN* 23(1): 49-66, 1968.

7499 **SURGICAL LESIONS OF THE BILIARY TRACT. THEIR GENESIS, DIAGNOSIS AND IMMEDIATE REPAIR.** *(Sp.)* Alche, S. (Polyclin. Avellaneda, Argentina), E. F. Pataro and V. F. Pataro. *Prensa Med Argent* 55(39):1849-1856, 1968.

7500 **ORGANIC BILIARY POST-CHOLECYSTECTOMY SYNDROME.** *(Sp.)* Gutierrez, V. T. (Gen. Hosp. Arequipa, Peru), P. G. Velasquez and D. M. Cardenas. *Rev Viernes Med* 19(2):224-232, 1968.

7501 **A SIMULTANEOUS MODIFICATION OF A AGGLUTINOGEN OF ERYTHROCYTES AND LOSS OF SPECIFIC PLATELET ANTIGENS IN A PATIENT WITH GALL BLADDER CARCINOMA.** *(E.)* Májský, A. (Fac. Med., Charles U., Prague, Czechoslovakia) and J. Jakoubková. *Neoplasma (Bratisl)* 16(3):297-301, 1969.

7502 **MEGACHOLEDOCHUS. A CONDITION ARISING FROM LONG-STANDING BILIARY TRACT OBSTRUCTION IN THE PATIENT WITH CHOLECYSTECTOMY. [CASE REPORT]** *(E.)* Cherrick, G. R. (St. Luke's Hosp. Ctr., New York, N. Y.), C. R. Kuehner and R. McCabe. *Amer J Surg* 115(6):845-848, 1968.

7503 LA SPHINCTEROTOMIE DE L'ODDI EN CHIRURGIE BILIAIRE. INDICATIONS–TECHNIQUES - RÉSULTATS (SPHINCTERECTOMY OF ODDI'S SPHINCTER IN BILIARY TRACT SURGERY INDICATIONS–TECHNIQUES–RESULTS.) *(Fr.)* Arianoff, A. Brussels, Arscia S. A., Paris, Librairie Maloine S. A., 1968. 148 pp.

7504 LONGITUDINAL STUDY OF LIVER FUNCTION IN PATIENTS AFTER CHOLEDOCHODUODENOANASTOMOSIS FOR RELATIVE INDICATIONS. *(Cz.)* Keclík, M. (Polyclin., Charles U., Prague, Czechoslovakia), A. Huslarová and J. Hyánek. *Cesk Gastroent Vyz* 22(7):448-456, 1968.

7505 IMPROVEMENT OF THE METHOD OF CHOLANGIOGRAPHY BY PERFUSION. *(It.)* Garbagna, P. (Inst. Med. Radiol. Phys. Ther., U. Pavia, Italy), A. C. Pratesi and A. Nicolato. *Radiol Med (Torino)* 54(5): 486-490, 1968.

7506 INTESTINAL OBSTRUCTION CAUSED BY GALLSTONES. *(Pol.)* Barczyński, M., P. Božek, C. Feliksik and W. Lącki. *Przegl Lek* 24(4):430-431, 1968.

7507 CRITERIA FOR EVALUATING CHOLANGIOGRAPHIC PICTURES IN THE DIAGNOSIS OF OBSTRUCTIONS OF THE COMMON BILE DUCT. *(E.)* Cadili, G. (Dept. Surg. Pathol. Clin. Propedeutics, U. Palermo, Italy), F. Cataliotti, G. Epifanio and M. Semilia. *Minerva Chir* 23(9):431-466, 1968.

7508 LITHIASIS IN THE AMPULLA OF VATER. *(Sp.)* Pera Blanco-Morales, C. (Fac. Med. U. Barcelona, Spain). *Cir Ginec Urol* 22(2):265-273, 1968.

7509 PSEUDO-DIVERTICULUM IN THE COURSE OF MECHANICAL JAUNDICE. *(Pol.)* Heltman, J. (3rd Provincial Hosp., Kielce, Poland). *Przegl Lek* 24(3):376-377, 1968.

7510 TRANSHEPATIC CHOLANGIOGRAPHY IN THE DIAGNOSIS IN OBSTRUCTIVE JAUNDICE. *(Fr.)* Kavazarakis, N. (2nd Surg. Clin., U. Salonika, Greece), P. Kalakonas and J. Zambacos. *Rev Med Moyen Orient* 24(3): 195-200, 1967.

7511 JUJUBE IN COMMON BILE DUCT. *(E.)* Choojai, S. (Ratburi Provincial Hosp., Thailand). *Lancet* 1(7541):530-531, 1968.

7512 EXPLORATION OF COMMON BILE DUCT: ANALYSIS OF INDICATIONS AND RESULTS IN 47 PATIENTS. *(E.)* Lynch, R. C. (Ochsner Clin., New Orleans, La.). *J Louisiana Med Soc* 119(10):404-407, 1967.

7513 ANGIOCHOLITIS AFTER SPHINCTEROTOMY OF THE SPHINCTER OF ODDI. *(Fr.)* Lataste, J. (Surg. Clin. Hôtel-Dieu, Paris, France) and J. P. Lenriot. *J Chir (Paris)* 94(5):391-402, 1967.

7514 ACUTE TORSION OF THE GALL BLADDER. [CASE REPORT] *(E.)* Badoe, E. A. (Ghana Med. Sch., Accra). *W Afr Med J* 16(4):128-129, 1967.

7515 CHOLECYSTOSES. *(Sp.)* Miyar Gonzalez, A. (Oviedo, Spain). *Rev Esp Enferm Apar Dig* 27(4):593-603, 1968.

7516 A CASE OF METACHRONOUS DOUBLE CANCER IN THE PAPILLA VATERI AND STOMACH. *(Jap.)* Yoshizumi, M., T. Sato, Y. Kunii and T. Kamata. *Jap J Cancer Clin* 14(9):816-819, 1968.

7517 ACUTE ANGIOCHOLITIS WITH HYPERAZOTEMIA. *(Fr.)* Trad, J. and A. Paraf. *Gaz Med France* 75(17):3585-3594, 1968.

7518 A CASE OF CANDIDOSIS IN THE BILIARY TRACT: CLINICAL AND IMMUNOLOGICAL ASPECTS. *(It.)* Chirico, G. (Inst. Hyg., U. Messina, Italy). *G Mal Infett* 20(4):381-385, 1968.

7519 SURGICAL PATHOLOGY OF THE SPHINCTER OF ODDI. *(Sp.)* Arandes Adan, R. (Fac. Med., U. Barcelona, Spain) and J. Ballester Peris. *Cir Ginec Urol* 22(1):18-25, 1968.

See also: 6418,6474,6506,6626,6713,6749,6764,
6768,6773,6781,6788,6946,6981,7401

## GENERAL

### 7520 THE NATURAL HISTORY AND MANAGEMENT OF RADIATION INDUCED INJURY OF THE GASTROINTESTINAL TRACT.

*(E.)* de Crosse, J. J. (Case Western Reserve U. Sch. Med., Cleveland, Ohio), R. S. Rhodes, W. B. Wentz, J. W. Reagan, H. J. Dworken and W. D. Holden. *Ann Surg* 170(3):369-384, 1969.

One hundred patients (95 female, 5 male; average age 52 yr) who sustained radiation induced gastrointestinal injuries before and after the introduction of supervoltage therapy for pelvic malignancies were studied. The injuries were: proctitis (44), rectal ulcer (10), rectal stricture (19), rectovaginal fistula (29), colitis (17), ileitis or jejunitis (25), rectal polyps (1) and rectal carcinoma (1). Urinary tract injury was frequently associated (55). Death was attributed to recurrent cancer in 28 and to irradiation injury of the gastrointestinal tract in 22. When a subset of 34 injured patients with carcinoma of the cervix was contrasted with 227 uninjured patients treated during the same 10 yr period, gastrointestinal damage and progression of injury correlated significantly ($p > 0.025$) with hypertension, less so with diabetes or atherosclerosis, and not at all with age, race, or clinical staging. Small cell cancer of the cervix or a previous supracervical hysterectomy was observed more often in injured patients. In 25 patients, the gastrointestinal injury was not apparent until at least 2 yr after therapy. A delayed appearance was often related to the onset of cardiovascular disease. There was an additional relationship between low splanchnic blood flow from systemic vascular disease and radiation vasculitis. Limited surgery was attended by a high mortality and a high complication rate, particularly late intestinal perforation. The evidence favored an extensive intestinal resection in the management of small bowel injury.

### 7521 CONTINUOUS PERITONEAL LAVAGE IN PERITONITIS.

*(E.)* Caridis, D. T. (Dept. Surg., U. Aberdeen, Scotland), J. Gaddie and N. A Matheson. *Europ Surg Res* 1(2):142-146, 1969.

Continuous peritoneal lavage with an isotonic electrolyte solution containing an antibiotic, in Hooded-Lister rats with fecal or biliary peritonitis, caused a dramatic reduction in mortality rate when compared with a systemic antibiotic and parenteral fluid alone. In a group with fecal peritonitis, 20 rats with peritoneal lavage showed a 30% mortality rate while 20 control rats with a systemic antibiotic had a 100% mortality rate. In a group with biliary peritonitis, 20 rats with peritoneal lavage showed a 25% mortality rate and 20 control rats a 100% mortality rate, within 24 hr. Although the effectiveness of peritoneal lavage was diminished with delay in its institution, pronounced benefit was still evident when treatment was delayed for some hr after contamination. In a group with fecal peritonitis, e.g., where the treatment was delayed for 9 hr (compared with 10 min in the earlier experiment) 5 (of 20) rats were alive after 24 hr, and 2 of these after 3 weeks. In another group, when lavage was begun 4 hr after cecal perforation 9 animals (of 20) were alive and well 3 weeks later in comparison with 2 (of 20) animals in the control group. Continuous lavage, which is a simple technique in man using methods evolved for peritoneal dialysis, may be of particular value in the reduction of mortality and of sepsis after gross peritoneal contamination.

### 7522 THE TREATMENT OF CHRONIC BILIARY SALMONELLA CARRIERS.

*(E.)* Dinbar, A. (Tel-Aviv U. Med. Sch., Israel), G. Altman and D. B. Tulcinsky. *Amer J Med* 47(2):236-242, 1969.

Sixty chronic biliary Salmonella carriers were studied. In a series of 35 carriers, cholecystectomy resulted in 25 cures and 10 failures. Of 15 carriers with cholelithiasis who were operated on under pre- and postoperative cover of ampicillin only 1 had a relapse. Ampicillin therapy without surgery failed in carriers with overt cholelithiasis, but succeeded in 4 of 7 without roentgenologic evidence of gallstones. Five of 7 hepatic carriers were successfully treated with ampicillin, although more than 1 course of treatment was necessary in some.

### 7523 SERUM ENZYME LEVELS IN PATIENTS WITH GASTROINTESTINAL CANCER.

*(It.)* Pipino, G. (Inst. Surg. Pathol., U. Milan, Italy), G. Agrifoglio and I. Cassina. *Minerva Med* 60(47):2325-2333, 1969.

Variations of serum enzyme levels were studied in 42 patients with malignant gastrointestinal tumors (22 patients with cancer of the stomach and 20 patients with cancer of the large intestine). Particularly significant increases in sorbitol dehydrogenase, glutamic dehydrogenase and glucose-6-phosphate dehydrogenase were observed in 75, 70 and 75% of the cases with cancer of the large intestine, resp., and in 77.7, 77.7 and 77.7% of patients with cancer of the stomach, in both localized and metastasized cases. The increase was greater when there was hepatic metastasis. Less significant elevations were observed in lactic dehydrogenase, SGPT, SGOT, leucin aminopeptidase and alkaline phosphatase, with fewer patients showing pathological levels. The authors conclude that the serum enzyme picture serves to demonstrate the degree of hepatic distress which is always present in subjects with cancer and may also lead to the early diagnosis of metastatic involvement of the liver.

### 7524 THE PATHOLOGY AND EPIDEMIOLOGY OF ACUTE ENTERITIS IN CAPTIVE COTTONTAIL RABBITS (*SYLVILAGUS FLORIDANUS*).

*(E.)* Richter, C. B. (Oak Ridge Natl. Lab., Tenn.) and R. L. Hendren. *Path Vet (Basel)* 6(2):159-175, 1969.

The pattern of acute enteritis in 500 captive cottontail rabbits was observed over a 4-yr period and was found to repeat itself within close limits in each of the 4 yr. Mortality exceeded 50% in those rabbits caged individually, and the clinical course was about 24 hr. Major pathological changes were limited to the stomach and large gut with necrosis, edema, and loss of mucosa. Severe dehydration was the probable cause of death in most cases. The disease bears clinical and pathological similarity to mucoid enteritis in domestic rabbits. Epidemic patterns suggest that an infectious agent may be involved.

### 7525 CHOLESTYRAMINE TREATMENT OF DIARRHEA ASSOCIATED WITH ILEAL RESECTION.

*(E.)* Hoffman, A. F. (Mayo Clin., Rochester, Minn.) and J. R. Poley. *New Eng J Med* 281(8):397-402, 1969.

The efficacy of cholestyramine as a treatment for diarrhea in

20 patients with ileal resection was examined by inpatient and outpatient trials. Ten of 12 patients with less than 100 cm of distal ileum resected and with some remaining ascending colon responded to cholestyramine, 16 g/day, by a significant decrease in fecal frequency or fecal weight or both. None of the 8 patients with resections of more than 100 cm of ileum responded. The degree of steatorrhea was also of predictive values since all 8 patients with fecal fat excretion of less than 20 g/day responded, whereas none of 5 patients with greater steatorrhea responded.

### 7526 ZOLLINGER-ELLISON SYNDROME CLINICAL AND HISTOPATHOLOGIC MANIFESTATIONS.

*(E.)* Schulte, W. J. (Marquette U. Sch. Med., Milwaukee, Wis.), G. Hensley, J. C. Garancis, S. D. Wilson and E. H. Wilson. *Amer J Surg* 117(6):866-875, 1969.

The important clinical manifestations of the Zollinger-Ellison syndrome are presented and some of their physiological causes are discussed. A review of the findings on light microscopy of 19 different islet-cell tumors associated with the ulcerogenic syndrome is presented. They are frequently similar to insulin-producing tumors. About 25% of them are predominantly trabecular in structure. Approximately one-third of the tumors have an argentaffin-like component. Findings in 7 tumors seen on electron microscopy are reviewed. Cytoplasmic granules were generally absent in all tumors. An illustrative case demonstrates the difficulty in diagnosis when the tumor is of duodenal origin. Histochemistry and electron microscopy can identify these tumors anatomically but they can not delineate their function. Therefore, when the clinical picture is that of an ulcerogenic syndrome and an islet-cell tumor is found, total gastrectomy is the treatment of choice.

### 7527 URINARY EXCRETION OF FREE AND CONJUGATED HISTAMINE IN VARIOUS GASTROINTESTINAL DISORDERS.

*(E.)* Sjaastad, O. (U. Hosp., Oslo, Norway). *Acta Med Scand* 185(6):495-499, 1969.

Patients with various gastrointestinal disorders were studied to evaluate the specificity of increased urinary excretion of conjugated histamine in myotonic dystrophy. Occasionally the excretion of conjugated histamine was elevated in patients with idiopathic steatorrhea, celiac disease and gastritis/peptic ulcer. When the histamine-like activity in the stools was determined, it was found to be augmented in cases with increased urinary output of conjugated histamine. A significantly increased urinary excretion of conjugated histamine was found in cases of chronic pancreatitis. The increased histamine-like activity indicated an intestinal origin of the urinary conjugated fraction in this disorder. While increased urinary excretion of conjugated histamine is not specific to myotonic dystrophy, it is higher in myotonic dystrophy than in the other disorders, except for chronic pancreatitis.

### 7528 THE PANCREAS IN KWASHIORKOR. AN ELECTRON MICROSCOPE STUDY. *(E.)*

Blackburn, W. R. (Armed Forces Inst. Pathol., Washington, D. C.) and K. Vinijchaikul. *Lab Invest* 20(4):305-318, 1969.

The pancreas from 5 well nourished children from 14 children (1-3 yr of age) dying of kwashiorkor was studied by light and electron microscopy. In kwashiorkor, the acinar glands were atrophic and somewhat disorganized. The usually basal-apical polarity of the acinar cells was absent due to a marked decrease in endoplasmic reticulum and zymogen granules. The remaining endoplasmic reticulum formed widely dilated cisternae containing membranous invaginations, vesicles containing cytoplasmic elements and occasionally, degenerating reticular and cytoplasmic elements. This process frequently involved the outer layer of the nuclear envelope, resulting in the loss of the usual double layered appearance. The concentration of mitochondria was decreased, and those remaining were often greatly enlarged. Cytoplasmic bodies resembling lysosomes were observed with increased frequency in all kwashiorkor specimens. In some specimens there was a significant increase in the concentration of lipid. The alterations in the organization of the endoplasmic reticulum, in such a manner that cytoplasmic matrix as well as segments of reticular membranes were sequestered within the cisternal space (intracisternal sequestration), were interpreted to represent a specific mechanism by which cytoplasmic atrophy occurs.

### 7529 THE ACTIVITY OF SENEGALESE CENTER (PASTEUR INSTITUT, DAKAR) IN 1966: ENTEROBACTERIA.

*(Fr.)* Causse, G. (Pasteur Inst., Dakar, Senegal), P. le Noc, L. Maydat and H. Sarrat. *Bull Soc Path Exot* 60(4):326-334, 1967.

The identification of 218 strains of Salmonella in 1966 (195 of human origin, and 23 of animal origin) showed that the serotypes isolated in Senegal are increasing regularly (1965: 117). The most frequent strains were: *S. typhi* (46), *S. typhi murium* (34), *S. enteritidis* (15), *S. paratyphi* (10), *S. montevideo, S. johannesburg, S. muenster* and *S. urbana* (7). In 1966 9 serotypes already identified in other countries were found, but no new serotypes were described. The number of Shigella strains (101) has been constant during the past few yr and has not shown any variations in the distribution of serotypes, except a reduction of the strain *Sh. dysenteriae.*

### 7530 GASTRIC HEMORRHAGES IN MEDICAL RESUSCITATION. THERAPEUTIC TRIALS WITH THIOPERAZINE.

*(Fr.)* Giroud, M. (Army Training Hosp., Lyon, France), B. Bourrel de la Ronciere, P. Barlet, B. Bocquet, P. Martin and M. Oulie. *Ann Anesth Franc* 9(3): 531-543, 1968.

Among 250 cases hospitalized in shock during 30 months, there were 18 digestive hemorrhages in 16 patients (15 males and 1 female; 9-80 yr old). Hospitalization was due to: respiratory insufficiency in cases of chronic respiratory insufficiency (7 patients); CO poisoning (3); encephalic syndromes (2); poliomyelitis (1); tetanus (1); syringomyelia (1); and cerebrovascular accident (1). The hemorrhage was sudden in onset, except in 1 case; it was more than 500 ml in 6 cases. Thioperazine was administered p.o. (2-4 mg/day in 2 doses during 5-10 days) or by injection i.m. (10 mg at first, and then 5 mg every 10-12 hr, for 2-3 days). Hemorrhage was stopped in most 2 hr after injection. Recalcitran cases still bleeding after 12 hr, were responsive to a further injection. In cases treated p.o. the action was slower. No hypotension or disturbances in cardiac rhythm were produced. Of 12 deaths (8 irreversible conditions) only 1 appeared to be connected with gastric hemorrhage and associated neuro-vegetative disturbances.

## GENERAL

### 7531 SELECTIVE ARTERIOGRAPHY IN CANCERS OF THE STOMACH, SMALL INTESTINE AND COLON.

*(Fr.)* Debray, C. (Bichat Hosp., Paris, France), J. Leymarios and C. Hernandez. *Ann Radiol (Paris)* 11(11/12): 806-812, 1968.

Selective arteriography produced significant information for the diagnosis of tumors of the gastrointestinal tract, not available by other methods, in the study of their growth and their metastasis, and indicated whether the tumor was benign or malignant. The vascularization of benign tumors shows a regular and harmonious network; in malignant tumors the vascular network has irregular sizes and directions; in angiomas there is a regular enlargement of the arterioles. When the tumor is malignant the afferent vein and artery are enlarged. Venous return is more precocious in malignant cancers; it is hyperprecocious and sudden in angiomas. The irregular character of vascularization is the most significant sign of malignancy, but it is the whole angiographic character that distinguishes malignant from benign tumors.

### 7532 AUTOPSY FINDINGS IN THE AGED POPULATION OF THAILAND.

*(E.)* Stitnimankarn, T. (Fac. Med. Mahidol U., Bangkok, Thailand), K. Thakerngpol and P. Tansurat. *Arch Path (Chicago)* 88(2):181-187, 1969.

In the 14 yr between 1954 and 1967, 10.5% of the autopsies performed excluding newborns, were on patients 60 yr of age and older. Analysis of 1149 autopsies (767 males and 382 females) performed on these elderly patients showed disease of the alimentary tract as the most common cause of death, accounting for 281 fatalities (24.6%). Other sites of fatal disease were, in descending order of frequency, the nervous system (16.7% genitourinary system (14.3%), respiratory system (11.2%), cardiovascular system 11.1%), hepatic and biliary system (9.7%), and pancreas (39%). The most common single cause of death in this series was malignant disease, which was responsible for 32.5% of all fatalities and was present in 10 patients who died of other causes, an overall incidence of 33.3%.

### 7533 RETROPERITONEAL HEMORRHAGE SECONDARY TO BLUNT TRAUMA.

*(E.)* Allen, R. E. (U. California Sch. Med., San Francisco), B. A. Eastman, B. L. Halter and W. B. Conolly. *Amer J Surg* 118(4):558-561, 1969.

An analysis of 75 cases of retroperitoneal hematoma showed an overall mortality of 24%. Most of the patients were young males in motor vehicle accidents and over half (36) were in shock on admission. Ribs were fractured in over ½, the spleen injured in 1/3. Exploration of the retroperitoneal hematoma was carried in 57% and the mortality in this group was 30%. Exploratory laparotomy was carried out in 43% but without exploration of the retroperitoneum; 10% of these patients died. Noncomplicated retroperitoneal hematomas secondary to blunt trauma should be treated conservatively.

### 7534 LEIOMYOSARCOMA OF THE GASTROINTESTINAL TRACT.

*(E.)* Stanley, W. M. (Emanuel Hosp., Portland, Oreg.) and L. E. Groshong. *Amer Surg* 35(11):809-816, 1969.

Thirteen leiomyosarcomas (stomach 6, small intestine 7) of the gastrointestinal tract, a rare tumor representing 1.3% of intestinal malignancies, are reported. There were 6 women and 7 men with an average age of 64 yr. Approximately half were diagnosed in the last 5 yr of the 20 yr study. Weight loss and dyspepsia without hematemesis or melena were the most common presenting symptoms with the gastric lesion. Cramping pain and bleeding with only 1 instance of obstruction were the presenting symptoms of the small intestine leiomyosarcoma. Most of the patients were anemic (80%) and had elevated sedimentation rates (70%). X-rays were diagnostic in all 5 stomach lesions studied, but of no help in the small intestine neoplasm. All the lesions were resectable. The tumor, which originates from the muscularis, is bulky and may be intramural, intraluminal, extraluminal or hour-glass shaped. A unique feature is the palisading of smooth muscle cell nuclei. Six of the 13 patients died 1½-9 yr after surgery. No correlations could be made with survival time.

### 7535 INTRAPERITONEAL FLUID INFUSION IN CHILDREN WITH GASTROENTERITIS.

*(E.)* Ransome-Kuti, O. (Coll. Med., U. Lagos, Nigeria), O. Elebute, T. Agusto-Odutola and S. Ransome-Kuti. *Brit Med J* 3(5669): 500-503, 1969.

In a study of 91 babies with dehydration as a result of gastroenteritis i.p. infusion was found to be safe and effective in those with mild or moderate dehydration, but not in those who were severely dehydrated. Eleven patients died, 7 of whom were moderately to severely dehydrated. The remaining 4 died of pneumonia and malnutrition. The fluids found to be most effective in the i.p. technique were normal saline with 28 mEq of potassium chloride/liter. or, for hypertonically dehydrated babies, half-strength Darrow's solution. Only 14 of 105 i.p. infusions had to be discontinued after 6 hr and replaced by i.v. infusion. This i.p. technique can be carried out by a nurse working single-handed if the baby is premedicated with promazine.

### 7536 RAISED SERUM AMYLASE AFTER UPPER ABDOMINAL OPERATION.

*(E.)* Keighley, M. R. B. (Redhill Gen. Hosp., England), A. G. Johnson and A. E. Stevens. *Brit J Surg* 56(6):424-427, 1969.

Serum amylase was determined in 107 cases before and on 2 fixed occasions after upper abdominal operations under controlled conditions and correlated with pancreatic handling. Twenty of the patients underwent cholangiography at surgery. There were 3 cases (acute parotitis undergoing a vagotomy and pyloroplasty, 1, pseudocyst of the pancreas with extensive organ necrosis, 1, and a resolving pancreatitis secondary to gallstones 1) of elevated amylase levels preoperatively and all were elevated postoperatively. There was 1 patient with late postoperative pancreatitis 10 days after jejunal resection who died. There were 2 cases of transient rises in the immediate postoperative period (after sphincterotomy, 1, and after cholecystojejunostomy for carcinoma of the head of the pancreas, 1). Of the 7 cases with prolonged elevations of serum amylase, 3 occurred after traumatic exploration of the common bile duct, and 1 each after hiatus hernia repair, sphincterotomy, cholecystectomy and vagotomy and pyloroplasty. There was poor correlation between pancreatic handling and elevated amylase levels.

## GENERAL

7537 **KWASHIORKORIGENIC DIET AND DIAZINON TOXICITY.** *(E.)* Boyd, E. M. (Dept. Pharmacol., Queen's U., Kingston, Ontario, Canada) and E. Carsky. *Acta Pharmacol (Kobehavn)* 27(4):284-294, 1969.

The acute oral $LD_{50} \pm$ S.E. of technical diazinon stabilized immediately after manufacture was 466 ± 87 mg/kg body weight of young male albino rats previously fed laboratory chow. The corresponding value in rats fed for 28 days after weaning on a purified diet containing 3.5% protein in the form of casein was 215 ± 26 mg/kg. When the protein content of the purified diet was increased to normal limits, the $LD_{50}$ was the same as in rats fed laboratory chow. The clinicopathological syndrome of toxicity to diazinon was essentially the same in rats fed all 3 types of diet except for the addition of kwashiorkoric signs due to protein deficiency in rats fed the low protein diet. The immediate toxic signs were diarrhea, sialorrhea, dacryorrhea, epistaxis, exophthalmos, tachypnea, tremors, ataxia, listlessness, anorexia, diuresis, glycosuria, alkalinuria, and hypothermia. Death usually occurred at ½ to 2 days following respiratory failure in deep hypothermic coma. At autopsy an acute gastroenteritis, a stress reaction, widespread dehydration and loss of weight in body organs, as well as extensive capillary-venous vasodilation were found. Survivors rapidly recovered from the toxic effects of the pesticide.

7538 **BLUNT FORCE INJURIES OF THE ABDOMINAL VISCERA WITHOUT EVIDENCE OF ANY EXTERNAL INJURY.** *(E.)* Agarwal, B. B. L. (King George's Med. Coll., Lucknow, India). *J Indian Med Ass* 49(5):229-233, 1967.

7539 **UNUSUAL PROBLEMS IN SURGERY. [CASE REPORT]** *(E.)* Beck, A. R. (Mt. Sinai Hosp., New York, N. Y.), L. Burrows and J. J. Leichtling. *J Mount Sinai Hosp NY* 35(3):287-300, 1968.

7540 **RETROPERITONEAL TERATOMA. REVIEW OF THE LITERATURE AND PRESENTATION OF AN UNUSUAL CASE.** *(E.)* Engel, R. M. (The Johns Hopkins Hosp., Baltimore, Md.), R. C. Elkins and B. D. Fletcher. *Cancer* 22(5):1068-1073, 1968.

7541 **CENSUS OF A RECEPTION CENTRE.** *(E.)* Edwards, G. (Maudsley Hosp., London, England), V. Williamson, A. Hawker, C. Hensman and S. Postoyan. *Brit J Psychiat* 114(513):1031-1039, 1968.

7542 **ABDOMINAL PAIN DUE TO ISOLATED NARROWING OF THE CELIAC ARTERY.** *(E.)* Taheri, S. A. (Millard Fillmore Hosp., Buffalo, N. Y.). *Vasc Dis* 5(2):90-95, 1968.

7543 **SURGICAL PROBLEMS IN THE NEWBORN.** *(Rev.)(E.)* Wilkinson, A. W. (Inst. Child. Hlth., U. London, England). *Canad Med Ass J* 98(4):205-215, 1968.

7544 **REGÍMENES DIETÉTICOS (DIETETIC REGIMENS).** *(Sp.)* Rojas Hidalgo, E. Madrid, Instituto Nacional de Previsión, 1968. 308 pp.

7545 **VITAMIN A CONTENT OF ASCARIS LUMBRICOIDES IN RELATION TO HYPOVITAMINOSIS A IN HUMAN HOST. A PRELIMINARY COMMUNICATION.** *(E.)* Singh, S. D. (M. G. M. Med. Coll., Indore, India), R. Vijayavargiya, A. T. Dabke and J. N. Pohowalla. *Indian J Pediat* 35(240):27-30, 1968.

7546 **MIXED SALIVARY GLAND NEOPLASMS. 26 CASES OF NEOPLASMS.** *(It.)* Concilio, A. (S. Giovanni Dio United Hosp., Salerno, Italy) and V. Anardi. *Riforma Med* 82(14):378-383, 1968.

7547 **THE ROLE OF NON-AGGLUTINABLE VIBRIOS IN DIARRHEAL DISEASES.** *(E.)* Jayasundera, L. B. T. (Med. Res. Inst., Colombo, Ceylon), T. Velaudapillai, C. M. Livera and N. M. P. Mendis. *Ceylon J Med Sci* 17(1):21-26, 1968.

7548 **EVALUATION OF A NEW ORAL COMPOUND, ABBOTT-16612 [N-(3-CHLORO-4-METHYLPHENYL)-N-(4-T-AMYLPHENOXY HEXAMETHYLENE) PIPERAZINE HYDROCHLORIDE] IN THE TREATMENT OF BILHARZIASIS.** *(E.)* Abdallah, A. (Inst. Res. Trop. Med., Cairo, Egypt) and N. Gad El-Mawla. *J Egypt Med Ass* 51(6/7):580-586, 1968.

7549 **TREATMENT OF ASCARIASIS WITH R-8299 OR TETRAMISOLE (ASCARIDIL).** *(Por.)* Huggins, D. W. (Med. Sch., Fed. U. Pernambuco, Brazil), M. W. Siqueira and V. P. Costa. *Hospital (Rio)* 72(5):1577-1582, 1967.

7550 **INFORMATION ON ENTEROBIASIS IN THE CHILD POPULATION OF THE WESTERN PART OF MINAS GERAIS.** *(Por.)* Dias, J. C. P. (Oswaldo Cruz Inst., Bambuí, Brazil). *Hospital (Rio)* 72(5):1611-1621, 1967.

7551 **THE PRESENT STATE OF MANSONIAN SCHISTOSOMIASIS IN SOROCABA, SÃO PAULO–1967. THE FIRST AUTOCHTHONOUS STATE.** *(Por.)* de Oliveira Gomes, M. C. (Med. Sch., Pontifical Cath. U., Sao Paulo, Brazil) and A. Ferreira Duque. *Hospital (Rio)* 72(5):1555-1562, 1967.

7552 **SIDE EFFECTS OF CLEFAMIDA [CHLORPHENOXAMIDE].** *(Por.)* Wanderley, G. (Med. Fac., Federal U. Rio Grande do Norte, Natal, Brazil). *Hospital (Rio)* 72(3):919-923, 1967.

7553 **NEUROPSYCHIC MANIFESTATIONS IN SCHISTOSOMIASIS PATIENTS TREATED WITH NIRIDAZOLE.** *(Por.)* Ztngier, F. R. (Med. Sch. Federal U. Rio de Janeiro, Brazil), A. Milech, A. J. G. Kropf and C. F. Filho. *Hospital (Rio)* 72(5):1469-1478, 1967.

7554 **TOLERANCE FOR THE COMBINATION OF NIRIDAZOLE AND BENZODIAZEPINE IN THE TREATMENT OF MANSONIC SCHISTOSOMIASIS.** *(Por.)* Zacharias, N. (Botafogo Polyclin., Brazil), P. R. Carvalho, J. F. Penteado and W. A. Machado. *Hospital (Rio)* 72(5):1465-1468, 1967.

## GENERAL

7555 **INCIDENCE OF PROTOZOIASIS AND HELMINTHIASIS IN CHILDREN IN THE MINEIRO TRIANGLE [BRAZIL].** *(Por.)* Alonso, M. T. (Med. Fac. Mineiro Triangle, Uberaba, Brazil). *Hospital (Rio)* 72(3): 935-920, 1967.

7556 **BALANTIDIUM COLI IN ITAPETININGA 12 CASES. [BRAZIL]** *(Por.)* Vallada, E. P. ("Adolfo Lutz" Inst., São Paulo, Brazil). *Hospital (Rio)* 72(3):821-824, 1967.

7557 **THE CLINICAL USE OF METACLOPRAMIDE.** *(Por.)* Ferreira, E. B. (Med. Fac. Federal U., Rio Grande do Sul, Porto Alegre, Brazil) and F. S. Silveira. *Hospital (Rio)* 72(3):841-849, 1967.

7558 **THE EFFICIENCY OF METHODS USED TO EVACUATE THE STOMACH AFTER ACUTE INGESTIONS.** *(E.)* Corby, D. G. (William Beaumont Gen. Hosp., El Paso, Tex.), R. C. Lisciandro, R. H. Lehman and W. J. Decker. *Pediatrics* 40(5):871-874, 1967.

7559 **WORM CURE WITHOUT TEARS. THE EFFECT OF NICLOSAMIDE ON TAENIASIS SAGINATA IN MAN.** *(E.)* Ditzel, J. (Glostrup Hosp., Copenhagen, Denmark) and M. Schwartz. *Acta Med Scand* 182(5):663-664, 1967.

7560 **PERSISTENCE OF RESISTANT TENIASIS (*T. SAGINATA*). STATISTICS OF FAVORABLE FACTORS.** *(Fr.)* Junod, C. (Paris, France). *Bull Soc Path Exot* 60(3):272-281, 1967.

7561 **GASTROINTESTINAL BLEEDING DURING TREATMENT WITH CORTICOSTEROIDS.** *(Rus.)* Ianushkevich, N. I. (Bassein Naval Hosp., Odessa, USSR) and B. Ts. Gorokhovskaia. *Klin Med (Moskva)* 45(10): 133-135, 1967.

7562 **EXPERIMENTAL ENTERITIS WITH FOOD POISONING AND CLASSICAL STRAINS OF *CLOSTRIDIUM PERFRINGENS* TYPE A IN LAMBS.** *(E.)* Hauschild, A. H. W. (Dept. Natl. Hlth. Welfare, Ottawa, Canada), L. Niilo and W. J. Dorward. *J Infect Dis* 117(5): 379-386, 1967.

7563 **INFANTILE DIARRHEA.** *(E.)* Kapur, Y. D. (Faizabad, India). *Punjab Med J* 17(2):116-118, 1967.

7564 **EOSINOPHILIC PERITONITIS. REPORT OF TWO CASES.** *(E.)* Hunt, C. E. (U. Minnesota Sch. Med., Minneapolis), T. C. Papermaster, E. N. Nelson and W. Krivit. *J Lancet* 87(12):473-476, 1967.

7565 **USE OF METRONIDAZOLE IN INTESTINAL AMEBIASIS TREATMENT.** *(Fr.)* Navarrete-Cadena, E. and F. F. Biagi. *Bull Soc Path Exot* 60(6):503-510, 1967.

7566 **THE EFFECT OF CORTISONE ON THE GASTROINTESTINAL TRACT.** *(Fr.)* Livathinopoulos, G. (Athens, Greece). *Rev Med Moyen Orient* 24(4):363-368, 1967.

7567 **MASS TREATMENT OF INTESTINAL PARASITOSES IN FOREIGN STUDENT DORMITORIES.** *(Cz.)* Dufek, M. (Inst. Exotic Dis., Prague, Czechoslovakia), R. Kalivoda, M. Kleskeň, J. Kohlíček, J. Lukeš, V. Stržínek, J. Štěpánek and Z. Thomayer. *Cas Lek Cesk* 106(43):1156-1159, 1967.

7568 **INTESTINAL PARASITIC INFECTIONS IN DORMITORIES OF FOREIGN STUDENTS.** *(Cz.)* Dufek, M. (Inst. Exotic Dis., Prague, Czechoslovakia), R. Kalivoda, M. Kleskeň, J. Kohlíček, J. Lukeš, V. Stržínek, J. Štěpánek and Z. Thomayer. *Cas Lek Cesk* 106(42):1124-1126, 1967.

7569 **FATAL STRONGYLOIDIASIS FOLLOWING CORTICOSTEROID THERAPY. [CASE REPORT]** *(E.)* Civantos, F. (U. Miami Sch. Med., Fla.) and M. J. Robinson. *Amer J Dig Dis* 14(9):643-651, 1969.

7570 **ORAL REPLACEMENT OF WATER AND ELECTROLYTE LOSSES IN CHOLERA.** *(E.)* Pierce, N. F. (Sch. Trop. Med., Calcutta, India), J. G. Banwell, R. C. Mitra, R. B. Sack, K. L. Brigham, D. S. Fedson, A. Mondal and P. M. Manji. *Indian J Med Res* 57(5):848-855, 1969.

7571 **VISCERAL LEISHMANIASIS. [CASE REPORT]** *(Heb.)* Iancu, T. (Tel Aviv U. Med. Sch., Israel) and E. Elian. *Harefuah* 77(3):101-103, 1969.

7572 **GASTROBRONCHIAL FISTULA COMPLICATING SUBPHRENIC ABSCESS. A CASE REPORT.** *(E.)* Hathirat, S. (U. Utah Coll. Med., Salt Lake City) and A. D. Renzetti Jr. *Amer Rev Resp Dis* 99(4):581-584, 1969.

7573 **ERYTHROMYCIN STEARATE IN INTESTINAL AMOEBIASIS.** *(E.)* Abdallah, A. (Inst. Res. Trop. Med., Cairo, Egypt), N. Gad-El-Mawla and M. I. El-Kordy. *J Egypt Med Ass* 52(2/3):168-173, 1969.

7574 **WINTER VOMITING DISEASE.** *(E.)* Adler, J. L. and R. Zickl. *J Infect Dis* 119(6):668-673, 1969.

7575 **INTERFACE OF PROTEIN NUTRITION AND MEDICINE IN THE TROPICS.** *(Rev.)(E.)* Ramalingaswami, V. (All India Inst. Med. Sci., New Delhi). *Lancet* 2(7623):733-736, 1969.

7576 **ADVERSE EFFECT ON BACTERIA OF PERITONEAL DIALYSIS SOLUTIONS THAT CONTAIN ACETATE.** *(E.)* Richardson, J. A. (Publ. Hlth. Svc. Hosp., San Francisco, Calif.) and K. A. Borchardt. *Brit Med J* 3(5673):749-750, 1969.

## GENERAL

7577 **A DIAGNOSTIC APPROACH TO CHRONIC DIARRHEA.** *(Rev.)(E.)* Donovan, E. J. (U. Colorado Med. Sch., Denver). *Dis Colon Rectum* 12(5):364-370, 1969.

7578 **SURGICAL JUDGMENT IN THE MANAGEMENT OF STAB WOUNDS OF THE ABDOMEN: A RETROSPECTIVE AND PROSPECTIVE ANALYSIS BASED ON A STUDY OF 600 STABBED PATIENTS.** *(E.)* Nance, F. C. (Louisiana State U. Sch. Med., New Orleans) and I. Cohn Jr. *Ann Surg* 170(4):569-580, 1969.

7579 **RELATIONSHIP OF ANEMIA AND HYPOPROTEINAEMIA TO THE FUNCTIONAL AND STRUCTURAL CHANGES IN THE SMALL BOWEL IN HOOKWORM DISEASE.** *(E.)* Tandon, B. N. (India Inst. Med. Sci., New Delhi), A. K. Saraya, K. Ramachandran and S. K. Sama. *Gut* 10(5);360-365, 1969.

7580 **AMEBIASIS IN PEACE CORPS VOLUNTEERS. CLINICAL PROFILE OF AMEBIASIS IN AMERICAN VOLUNTEERS IN INDIA.** *(E.)* Grossman, W. (Peter Bent Brigham Hosp., Boston, Mass.). *Amer J Gastroent* 51(5):418-433, 1969.

7581 **ACUTE SUPPURATIVE MESENTERIC LYMPHADENITIS. [CASE REPORT]** *(E.)* Herrington, J. L. Jr. (St. Thomas Hosp., Nashville, Tenn.). *Amer Surg* 35(6):405-406, 1969.

7582 **MECONIUM PERITONITIS.** *(E.)* Cerise, E. J. (Tulane U. Sch. Med., New Orleans, La.) and W. Whitehead. *Amer Surg* 35(6):389-392, 1969.

7583 **MESENTERIC VENOUS THROMBOSIS SECONDARY TO POLYCYTHEMIA VERA. [CASE REPORT]** *(E.)* Ostermiller, W. Jr. (U. California Coll. Med., Irvine) and R. Carter. *Amer Surg* 35(6):407-409, 1969.

7584 **PERITONEAL DIALYSIS.** *(Rev.)(E.)* Miller, R. B. (Orange County Med. Ctr., Calif.) and C. R. Tassistro. *New Eng J Med* 281(17):945-949, 1969.

7585 **AMYLOIDOSIS ASSOCIATED WITH PRIMARY AGAMMAGLOBULINEMIA, SEVERE DIARRHEA AND FAMILIAL HYPOGAMMAGLOBULINEMIA.** *(E.)* Mawas, C. (St. Lazare Hosp., Paris, France), C. Sors and J. J. Bernier. *Amer J Med* 46(4):624-634, 1969.

7586 **GLIOMATOSIS PERITONEI CAUSED BY OVARIAN TERATOMA. [CASE REPORT]** *(E.)* Fortt, R. W. (Royal Postgrad. Med. Sch. London, England) and I. K. Mathie. *J Clin Path* 22(3):348-353, 1969.

7587 **HEMANGIOMA AS A CAUSE OF CRYPTOGENIC GASTROINTESTINAL HEMORRHAGE. [CASE REPORT]** *(E.)* Cacatian, J. C. (Barnert Mem. Hosp. Ctr., Paterson, N. J.) and M. Kannerstein. *J Mount Sinai Hosp NY* 36(4):299-307, 1969.

7588 **VIRAL ENTERIC INFECTIONS AMONG DIARRHOEAL AND NON-DIARRHOEAL INFANTS IN TEHRAN, IRAN.** *(E.)* Behbehani, A. M. (U. Tehran Coll. Med., Iran), F. Shafa, F. K. Mirikitani, D. C. Jenkins and H. A. Wenner. *J Trop Med Hyg* 72(6):149-152, 1969.

7589 **GASTROINTESTINAL NEOPLASMS IN VON RECKLINGHAUSEN'S DISEASE. [CASE REPORT]** *(E.)* Lukash, W. M. (Natl. Naval Med. Ctr., Bethesda, Md.) and R. B. Johnson. *Southern Med J* 62(10):1237-1239, 1969.

7590 **THE EFFECT OF CASEIN DIET ON THE DEVELOPMENT OF AMYLOIDOSIS IN HAMSTERS.** *(E.)* Irwin, G. R. Jr. (New Jersey Coll. Med. Dentistry, Jersey City) and L. G. Smith. *Proc Soc Exp Biol Med* 130(3):819-821, 1969.

7591 **STUDIES IN PERITONEAL HEALING. A REVIEW.** *(E.)* Mott, T. J. (Westminster Hosp., London, England), E. C. Ashby and H. Ellis. *J Abdom Surg* 11(6):110-116, 1969.

7592 **OUTBREAK OF INFANTILE GASTRO-ENTERITIS DUE TO *ESCHERICHIA COLI* 0111.** *(E.)* Davies, J. R. (Publ. Hlth. Lab., London, England), M. P. Elman, D. G. Fleck and J. H. Bruce. *Public Health* 83(5):240-244, 1969.

7593 **INTRAINTESTINAL ADMINISTRATION OF OXYGEN AND LIVER FUNCTION IN EXPERIMENTAL TRAUMATIC SHOCK.** *(Pol.)* Ziarek, S. (1st Surg. Clin., Silesian Acad. Med., Zabrze, Poland), W. Kliszcz, J. Pióro, M. Sikora and A. Tokarzowa. *Pol Przegl Chir* 41(4):363-369, 1969.

7594 **INTESTOPAN IN INTESTINAL PROTOZOAN INFESTATIONS.** *(Pol.)* Pawlowski, Z. (Clin. Parasit. Dis., Poznan, Poland), W. Kocięçka and W. Kasprzak. *Pol Tyg Lek* 24(21):807-809, 1969.

7595 **AVERSION TO LATERAL HYPOTHALAMIC STIMULATION CAUSED BY INTRAGASTRIC FEEDING OR OBESITY.** *(E.)* Hoebel, B. G. (Princeton U., N. J.) and R. D. Thompson. *J Comp Physiol Psychol* 63(4):536-543, 1969.

7596 **VOLUNTARY INTRAGASTRIC FEEDING: ORAL AND GASTRIC CONTRIBUTIONS TO FOOD INTAKE AND HUNGER IN MAN.** *(E.)* Jordan, H. A. (Sch. Med., U. Pennsylvania, Philadelphia). *J Comp Physiol Psychol* 63(4):498-506, 1969.

7597 **IMIDOYLUREAS. A NEW CLASS OF ANTHELMINTICS.** *(E.)* Diana, G. D. (Sterling-Winthrop Res. Inst., Rensselaer, N. Y.), A. Yarinsky, E. S. Zalay, D. A. Berberian and S. Schalit. *J Med Chem* 12(5):791-793, 1969.

7598 **PATTERNS OF *V. CHOLERAE* INFECTION IN ENDEMIC AREAS.** *(E.)* De, S. P. (Cholera Res. Ctr., Calcutta, India), R. Sinha and B. C. Deb. *J Indian Med Ass* 52(10):458-459, 1969.

## GENERAL

7599 **ABDOMINAL EMERGENCIES DUE TO VASCULAR DISORDERS.** *(Rev.)(E.)* Madanagopalan, N. (Madras Med. Coll., India). *Antiseptic* 66(4):241-246, 1969.

7600 **MYCOTIC ANEURYSM OF THE ABDOMINAL AORTA: A CASE DUE TO *SALMONELLA CHOLERAESUIS* VAR. KUNZENDORF.** *(E.)* Lewis, J. F. (New Hanover Mem. Hosp., Wilmington, N. C.) and S. E. Warshauer. *Southern Med J* 62(5):597-598, 1969.

7601 **THE SIGNIFICANCE OF LOCAL IgA IN THE PHYSIOLOGY OF THE INTESTINAL MUCOSA.** *(Rev.)(E.)* Crabbé, P. A. (Dept. Med., U. Sherbrooke, Canada) and J. F. Heremans. *Folia Med Neerl* 12(3):100-106, 1969.

7602 **SERUM ALBUMIN.** *(Rev.)(E.)* Rothschild, M. A. (New York U. Sch. Med., N. Y.), M. Oratz and S. S. Schreiber. *Amer J Dig Dis* 14(10):711-744, 1969.

7603 **HAMARTOMAS IN THE ALIMENTARY TRACT.** *(Rev.)(E.)* Dawson, I. *Gut* 10(8): 691-694, 1969.

7604 **EXPERIENCE WITH MODERN TREATMENT OF TAENIASIS.** *(E.)* Dufek, M. (Ctr. Trop. Dis., Prague, Czechoslovakia) and R. Kalivoda. *Rev Czech Med* 15(1):29-32, 1969.

7605 **STRESS-RELATED GASTROINTESTINAL DYSFUNCTION AND COMBINED ANTIDEPRESSANT-TRANQUILIZER THERAPY.** *(E.)* Oren, B. G. (Miami, Fla.). *Psychosomatics* 10(4):258-263, 1969.

7606 **PNEUMOPERITONEUM IN THE NEWBORN. [CASE REPORT]** *(E.)* Williams, T. N. (Galveston, Tex.). *Texas Med* 65(3):72-75, 1969.

7607 **PATHOGENESIS OF ONCOGENIC SIMIAN ADENOVIRUSES. IV. THE HISTOPATHOLOGY AND ULTRASTRUCTURE OF INTRAPERITONEAL NEOPLASMS INDUCED BY SV20.** *(E.)* Merkow, L. P. (Allegheny Gen. Hosp., Pittsburgh, Pa.), M. Slifkin, M. Pardo and N. P. Rapoza. *Int J Cancer* 4(4):455-464, 1969.

7608 **RESULTS OF TREATING SCHISTOSOMIASIS CAUSED BY *S. HAEMATOBIUM* AND *S. MANSONI* WITH 2-DEHYDRO-EMETIN INJECTIONS.** *(Fr.)* Blanc, F. and Y. Nosny. *Bull Soc Path Exot* 60(4):372-377, 1967.

7609 **CHRONIC DIARRHEA IN NURSING INFANTS.** *(Fr.)* Fontaine, G. (Lille Hosp., France). *Lille Med* 12(Spec):1030-1037, 1967.

7610 **BACTERIA CONTAMINATION OF THE INCISION AREA IN ELECTROSURGICAL INTERVENTION IN THE GASTROINTESTINAL TRACT.** *(Rus.)* Tvorko, M. S. (Ternopol Med. Inst., USSR). *Klin Khir (Kiev)* (8):8-11, 1967.

7611 **HEMATOMA OF THE RECTUS ABDOMINIS MUSCLE COMPLICATED BY HEMOPERITONITIS.** *(It.)* Guadagno, G. (S. S. Trinità Hosp., Naples, Italy). *Rass Int Clin Ter* 47(18):1028-1035, 1967.

7612 **STUDIES OF ENTEROBACTERIA INDUCING POSITIVE REACTIONS IN THE KERATOCONJUNCTIVITIS TEST AND LACKING SHIGELLA AGGLUTINOGENS.** *(Fr.)* Ciufeco, C. (Dr. I. Cántacuzino Inst., Bucharest, Romania) and D. Ionesco. *Arch Roum Path Exp Microbiol* 26(4):781-786, 1967.

7613 **ABDOMINAL COLIC.** *(Rev.)(E.)* Ganesan, T. K. (Tirunelveli Med. Coll. Hosp., India). *Antiseptic* 66(4):255-258, 1969.

7614 **OSMOTIC PRESSURE IN BLOOD SERUM AND URINE BEFORE AND AFTER ABDOMINAL OPERATION.** *(Jap.)* Oida, K. (Gifu U. Sch. Med., Japan). *Acta Sch Med Univ Gifu* 15(3):543-568, 1969.

7615 **CLINICAL EXPERIENCE WITH AN ANTISPASMODIC AND ANALGESIC SUBSTANCE.** *(E.)* Kochhar, K. S. (Med. Coll., Amritsar, India), H. Rai and V. Parkash. *J Indian Med Ass* 49(4):170-173, 1967.

7616 **STRONGYLOIDIASIS ENDEMICS IN PIEDMONT.** *(It.)* Castelli, D. (S. Luigi Gonzaga Hosp., Turin, Italy) and E. Vercellino. *G Mal Infett* 19(7): 453-455, 1967.

7617 **ABDOMINAL FORM OF TULAREMIA.** *(Cz.)* Černý, Z. (Med. Fac., Purkyne U., Brno, Czechoslovakia) and N. Bieronská. *Cas Lek Cesk* 106(41): 1114-1117, 1967.

7618 **DISEASES OF THE DIGESTIVE TRACT WHICH CAUSE SUDDEN DEATH.** *(It.)* Ritucci, A. and R. Luvoni. *Minerva Medicoleg* 87(2/3):126-131, 1967.

7619 **CLINICAL STATISTICS IN THE STUDY OF MUSHROOM POISONING.** *(It.)* Montoli, E. (Circolo Hosp., Varese, Italy) and A. Marra. *Minerva Med* 58(77):3294-3302, 1967.

7620 **FURTHER OBSERVATIONS ON THE USE OF AMBILHAR IN THE TREATMENT OF SCHISTOSOMIASIS MANSONI IN THE SUDAN.** *(E.)* Abdalla, R. E., S. Iskander and M. A. Haseeb. *J Trop Med Hyg* 71(2):44-45, 1968.

7621 **HUMAN *ISOSPORA BELLI* INFECTION IN NEW YORK CITY. [CASE REPORT]** *(E.)* Cahill, K. M. (St. Clare's Hosp., New York, N. Y.) and Y. H. Tsai. *J Trop Med Hyg* 71(5):131-133, 1968.

7622 **WOLMAN'S DISEASE. DISTRIBUTION AND SIGNIFICANCE OF THE CENTRAL NERVOUS SYSTEM LESIONS.** *(E.)* Guazzi, G. C. (Born-Bunge Found., Antwerp, Belgium), J. J. Martin, M. Philippart, H. Roels, C.

Hooft, H. van der Eecken, M. J. Delveke and L. Vrints. *Path Europ* 3(2/3):266-277, 1968.

7623 **LEPTOSPIROSIS–SOCIAL FACTORS. LEPTOSPIROSIS IN PRISON INMATES: SOCIAL FACTORS IN COMMUNICABLE DISEASE.** *(E.)* Easton, R. E. (U. Kansas Med. Ctr., Kansas City). *J Kansas Med Soc* 69(3):147-150, 1968.

7624 **THE SWALLOWED SAFETY PIN.** *(E.)* Smellie, G. D. (Victoria Infirm., Glasgow, England). *J Roy Coll Surg Edinb* 13(2):105, 1968.

7625 **PROGRESS IN GASTROENTEROLOGY.** *(E.)* Glass, G. B. J., Ed. New York, Grune & Stratton, 1968. 528 pp.

7626 **SYMPTOMS AND CLINICAL AND LABORATORY FINDINGS IN 123 CASES OF SCHISTOSOMIASIS MANSONI IN ST. LUCIA.** *(E.)* Lees, R. E. M. (Res. Control Dept., St. Luica, West Indies). *J Trop Med Hyg* 71(2):40-43, 1968.

7627 **NERVOUS INGESTION (SO-CALLED).** *(E.)* Rouse, M. O. (U. Texas Southwestern Med. Sch., Dallas). *Rhode Island Med J* 51(7):51-57, 1968.

7628 **CELIAC AXIS SYNDROME. ABDOMINAL ANGINA CAUSED BY EXTERNAL COMPRESSION OF THE CELIAC ARTERY.** *(E.)* Harjola, P. T. (Dept. Pathol., U. Helsinki, Finland) and A. Lahtiharju. *Amer J Surg* 115(6):864-869, 1968.

7629 **SCHISTOSOMIASIS MANSONI IN A SURINAM POLDER.** *(E.)* Reijenga, T. W. (Agric. U., Wageningen, Netherlands) and W. P. van Asselt. *Trop Geogr Med* 20(1):28-34, 1968.

7630 **SKIN TEST REACTIONS IN ALLERGIC PATIENTS AND OTHER CONTROL GROUPS WITH CRUDE EXTRACTS OF ADULT *S. JAPONICUM* WORM ANTIGENS.** *(E.)* Agbayani, B. F. (Coll. Med., Phillipines). *Acta Med Philipp* 4(3):138-142, 1968.

7631 **INVOLVEMENT OF NERVOUS TISSUE IN PRIMARY FAMILIAL XANTHOMATOSIS WITH ADRENAL CALCIFICATION.** *(E.)* Wolman, M. (Tel-Aviv U. Med. Sch., Israel). *Path Europ* 3(2/3):259-265, 1968.

7632 **PRIMARY TUBERCULOSIS OF THE STOMACH, CAECUM, AND APPENDIX TREATED WITH ANTITUBERCULOUS DRUGS. [CASE REPORT]** *(E.)* Stirk, D. I. (North Devon Infirm., Barnstaple, England). *Brit J Surg* 55(3):230-235, 1968.

7633 **PROGRESS IN GASTROENTEROLOGY.** *(Rev.)(Fr.)* Cachin, M. (Paris, France). *Rev Prat* 18(31 bis):76-85, 1968.

7634 **BENIGN LYMPHOEPITHELIAL LESION OF THE PAROTID GLAND.** *(E.)* Naji, A. F. (St. Alexis Hosp., Cleveland, Ohio), W. F. Boukalik and G. Massarani. *Ohio Med J* 64(3):329-333, 1968.

7635 **DEXPANTHENOL WITH CHOLINE BITARTRATE IN THE TREATMENT OF INFANTILE COLIC.** *(E.)* Beauregard, W. G. (West Monroe, La.). *J Louisiana Med Soc* 120(3):142-145, 1968.

7636 **ANIMAL EXPERIMENTS AND CLINICAL INVESTIGATIONS OF SUPPLEMENTAL THERAPY OF PERFORATIVE PERITONITIS WITH PROTEASE INHIBITORS.** *(Ger.)* Nagel, M. (Surg. Clin., U. Mainz, Germany). *Bull Soc Intern Chir* 27(3):145-152, 1968.

7637 **ACUTE ABDOMEN IN THE ELDERLY.** *(Ger.)* Spath, F. (Surg. Clin., U. Graz, Austria) and D. Kronberger-Schönecker. *Zbl Chir* 93(23):793-799, 1968.

7638 **THE ROLE OF ENTERIC PATHOGENS IN CHILDREN AND SOME *ESCHERICHIA COLI* SEROTYPES WITH CAPSULAR L ANTIGEN.** *(Rum.)* Chipail, A. (Inst. Med. Pharm., Iasi, Romania), M. Haimovici, C. Dragomir, G. Gavază, C. Bercovici, C. Iosub and V. Beşleagă. *Rev Medicochir Iasi* 72(1):135-139, 1968.

7639 **AKTUELLE GASTROENTEROLOGIE (CURRENT GASTROENTEROLOGY).** *(Ger.)* Bartelheimer, H. and N. Heisig, Eds. Stuttgart, Georg Thieme, 1968. 375 pp.

7640 **CLINICAL GASTROENTEROLOGY.** *(E.)* Jones, F. A., J. W. P. Gummer and J. E. Lennard-Jones. Oxford, Edinburgh, Blackwell Scientific Publications, 1968. 888 pp.

7641 **SIMULTANEOUS SURGICAL ABDOMEN OF PHYSICIAN AND SON. CASE REPORTS.** *(E.)* Dietz, M. W. (U. Missouri Sch. Med., Springfield). *Missouri Med* 65(2):116-117, 1968.

7642 **ACUTE ABDOMEN IN A CASE OF TORSION OF AN INTRA-ABDOMINAL SEMINOMA OF THE TESTICLE. [CASE REPORT]** *(E.)* Passanate, B. M. (Surg. Svc. Missouri Pacific Employees Hosp., St. Louis), G. R. Guerra and H. Alarcon. *Missouri Med* 65(5):362-364, 1968.

7643 **$\mathrm{G_{M2}}$-GANGLIOSIDOSIS (GENERALIZED GANGLIOSIDOSIS). MORPHOLOGY AND CHEMICAL PATHOLOGY.** *(E.)* Suzuki, K. (Albert Einstein Coll. Med., New York, N. Y.), K. Suzuki and G. C. Chen. *Path Europ* 3(2/3):389-408, 1968.

7644 **DIAGNOSIS AND TREATMENT OF THE ZOLLINGER-ELLISON SYNDROME. [CASE REPORT]** *(E.)* Nance, F. C. (Louisiana State U. Sch. Med., New Orleans) and M. A. Thomas. *J Louisiana Med Soc* 120(2): 91-95, 1968.

## GENERAL

7645 **TUMORS OF THE SALIVARY GLANDS.** *(E.)* Yarington, C. T. (West Virginia U. Sch. Med., Morgantown) and P. M. Sprinkle. *W Virginia Med J* 64(4):117-122, 1968.

7646 **HABITUAL ORAL USE OF METOCLOPRAMIDE IN RADIOLOGICAL STUDIES OF THE DIGESTIVE TRACT.** *(It.)* Panzironi, P. E. (S. Spirito Religious Inst., Rome, Italy), M. Marinucci and A. Ricci. *Nunt Radiol* 32(11):1345-1358, 1966.

7647 **ASCARIASIS.** *(E.)* Greenbaum, D. M. (Georgetown U. Med. Ctr., Washington, D. C.). *Med Ann DC* 37(8):405-410, 1968.

7648 **SURGICAL ASPECT OF DIGESTIVE TRACT DIVERTICULUM (DIVERTICULOSIS).** *(Ser.)* Longhino, A. (Med. Fac., Rijeka, Yugoslavia), M. Lenković and V. Šustić. *Acta Fac Med* 1(1):273-284, 1966.

7649 **PATTERN OF NEOPLASIA IN CHILDREN–A STUDY OF 215 CASES.** *(E.)* Mankodi, R. C. (Seth V. S. Gen. Hosp., Ahmedabad, India), K. N. Mehta, Y. N. Doshi and M. S. Kanvinde. *Indian J Path Bact* 12(1): 4-71, 1969.

7650 **THE FEASIBILITY OF USING PATCHES IN GASTROINTESTINAL SURGERY.** *(Sp.)* Sanz Acin, C. (Guipúzcoa Provincial Hosp., San Sebastian, Spain). *Rev Esp Enferm Apar Dig* 27(3):405-438, 1968.

7651 **MANAGEMENT OF GASTRODUODENAL PERFORATIONS.** *(Sp.)* Paladino, J. E. (Argerich Hosp., Buenos Aires, Argentina), H. G. Gugliotella and A. M. Paladino. *Prensa Med Argent* 55(7):343-346, 1968.

7652 **LEPTOSPIROSIS. GENERAL CONSIDERATIONS. PRESENTATION OF 2 CASES.** *(Por.)* Guimarães, S. J. (Sch. Med. Surg., Rio de Janeiro, Brazil), J. R. Neto and M. E. Pinto Vieira. *Arq Brasil Med* 54(2):128-138, 1967.

7653 **METRONIDAZOLE (8823 R.P.-FLAGIL) IN THE TREATMENT OF CHRONIC INTESTINAL AMEBIASIS.** *(Por.)* Huggins, D. (Fac. Med., U. Federal Pernambuco, Recife, Brazil). *Hospital (Rio)* 72(2):621-625, 1967.

7654 **MODERN ASPECTS OF TYPHOID FEVER TREATMENT.** *(It.)* Loschiavo, F. (Infect. Dis. Trop. Dis. Clin., U. Messina, Italy), N. Puglisi and G. Russo. *G Mal Infett* 19(3):143-169, 1967.

7655 **MASSIVE TRANSFUSION FOR THE GASTROINTESTINAL HEMORRHAGE SYNDROME. BILHARZIOSIS?** *(Fr.)* Haffar, M. (Beirut, Lebanon) and F. Allamé. *Rev Med Moyen Orient* 24(3):238-240, 1967.

7656 **TECHNIQUE FOR SURGICAL TREATMENT OF AN OMPHALOCELE WITH TOTAL EVISCERATION OF THE INTESTINES AND THE LIVER.** *(It.)* Verga, G. (U. Pavia, Italy) and F. Pallucchini. *Chirurgia* 22(1):1-7, 1967.

7657 **HEREDITARY COPROPORPHYRIA. STUDY OF A SWEDISH FAMILY.** *(E.)* Haeger-Aronsen, B. (Gen. Hosp., Malmo, Sweden), G. Stathers and G. Swahn. *Ann Intern Med* 69(1):221-227, 1968.

7658 **TREATMENT OF INFANT DIARRHEA.** *(Fr.)* Giraud, F. and R. Mariani. *Rev Prat* 18(31 bis): 174-178, 1968.

7659 **SERUM PROTEINS IN KWASHIORKOR AND MARASMUS: 2 NON-TUBERCULOUS AND TUBERCULOUS CASES.** *(E.)* Chatterjee, S. (Calcutta Sch. Trop. Med., India), A. K. Bhattacharyya and J. N. Mandal. *Bull Calcutta Sch Trop Med* 16(3):73-74, 1968.

7660 **PRELIMINARY OBSERVATIONS ON THE DIGESTIVE PROTEOLYTIC ENZYMES IN ASCARIASIS.** *(E.)* Chatterji, A. (Calcutta Sch. Trop. Med., India), S. P. Basu and A. B. Chowdhury. *Bull Calcutta Sch Trop Med* 16(1):9-11, 1968.

7661 **STUDIES ON CLOSE CONTACTS OF CHOLERA CASES.** *(E.)* Neogy, K. N. (Calcutta Sch. Trop. Med., India), M. K. Mukherhee,and P. N. Manji. *Bull Calcutta Sch Trop Med* 16(3):77-78, 1968.

7662 **THROMBOCYTOPENIC PURPURA IN KWASHIORKOR.** *(E.)* Bhattacharyya, A. K. (Calcutta Sch. Trop. Med., India) and A. K. Basu. *Bull Calcutta Sch Trop Med* 16(1):1-2, 1968.

7663 **LIVER CHANGES IN BOVINE FASCIOLIASIS.** *(Bul.)* Goranov, I., L. Kr"stev and O. Poliakova-Kr"steva. *Suvr Med (Sofiia)* 19(3):205-210, 1968.

7664 ***ESCHERICHIA COLI* ENTERITIS IN BULGARIA.** *(Bul.)* Verbev, P. Ie., S. A. Atanasova, V. S. Monev and M. D. Koien. *Suvr Med (Sofiia)* 19(6):527-531, 1968.

7665 **A CASE OF MUCOVISCIDOSIS WITH MECONIUM PERITONITIS.** *(Rus.)* Mikel'saar, R. N. (Tartu Munic. Clin. Hosp., USSR). *Arkh Pat* 30(4):84-85, 1968.

7666 **PSEUDOPERITONITIS DIABETICA–A CONTRIBUTION TO THE DIAGNOSIS OF THE ACUTE ABDOMEN.** *(Pol.)* Dobrowolski, J. (1st Surg. Clin., Silesian Acad. Med., Zabrze, Poland) and E. Klarewicz. *Przegl Lek* 24(2):321-322, 1968.

7667 **EVALUATION OF THE EFFICIENCY OF MEASURES TO PREVENT *ESCHERICHIA COLI* ENTERITIS. I. PRINCIPLES AND CRITERIA.** *(Rus.)* Khazenson, L. B. *Tr Leningr Inst Epidem Microbiol Paster* 33:214-221, 1968.

7668 **AN EPIDEMIC OF SALMONELLOSIS BY *SALMONELLA PANAMA*. (A CLINICAL AND EPIDEMIOLOGICAL STUDY).** *(Fr.)* Gillot, F. (Pasteur Inst., Paris, France), G. Bodin, O. Bureau and B. Guesnier. *Arch Franc Pediat* 25(3):301-311, 1968.

## GENERAL

7669 **A MIXED INFECTION BY *YERSINA ENTEROCOLITICA* AND *SALMONELLA*.** *(Fr.)* Graux, C. (Bacteriol. Lab., Namur, Belgium) and H. H. Mollaret. *Louvain Med* 87(6):437-443, 1968.

7670 **THE USE OF THE IMMUNOLOGICAL TEST IN WHITE MICE (PULMONARY MODEL) TO DETERMINE THE SPECIFIC SEROLOGICAL CHANGES IN THE BLOOD OF CHILDREN WITH ACUTE DYSENTERY.** *(Rus.)* Ivanova, V. V. (Leningrad Inst. Child. Infect. USSR) and T. A. Avdeieva. *Tr Leningr Inst Epidem Microbiol Paster* 33:267-274, 1968.

7671 **FACTORS DETERMINING THE LEVELS OF MORBIDITY OF *ESCHERICHIA COLI* ENTERITIS FOCI.** *(Rus.)* Khazenson, L. B. *Tr Leningr Inst Epidem Microbiol Paster* 33:183-192, 1968.

7672 **IMMUNOLOGICAL CHARACTERISTICS OF A HEALTHY POPULATION IN REGARD TO DYSENTERY.** *(Rus.)* Avdeieva, T. A. *Tr Leningr Inst Epidem Microbiol Paster* 33:243-258, 1968.

7673 **THE IMMUNOLOGICAL CHARACTERISTICS OF THE YEREVAN POPULATION IN REGARD TO DYSENTERY.** *(Rus.)* Chilingarian, A. V. (Yerevan Inst. Epidemiol. Hyg., USSR) and T. A. Avdeieva. *Tr Leningr Inst Epidem Microbiol Paster* 33:259-266, 1968.

7674 **THE COMPARATIVE EPIDEMIOLOGICAL SIGNIFICANCE OF *ESCHERICHIA COLI* ENTERITIS CARRIERS OF ENTEROPATHOGENIC *ESCHERICHIA COLI* AS THE SOURCE OF INFECTION.** *(Rus.)* Khazenson, L. B. *Tr Leningr Inst Epidem Microbiol Paster* 33:193-199, 1968.

7675 **IMMUNOLOGICAL NATURE OF *SHIGELLA SONNE* DYSENTERY.** *(Rus.)* Lullu, A. V., T. Ia. Gennad'ieva and L. B. Khazenson. *Tr Leningr Inst Epidem Microbiol Paster* 33:288-292, 1968.

7676 **A STUDY OF INDIRECT HEMAGGLUTINATION REACTIONS TO DIAGNOSE ACUTE INTESTINAL DISEASES.** *(Rus.)* Lullu, A. V. *Tr Leningr Inst Epidem Microbiol Paster* 33:282-287, 1968.

7677 **EVALUATION OF THE EFFICIENCY OF THE PREVENTIVE MEASURES FOR *ESCHERICHIA COLI* ENTERITIS. III. AN ANALYSIS OF THE EFFICIENCY OF MEASURES TAKEN IN LENINGRAD (1958-1965).** *(Rus.)* Khazenson, L. B., Ie. V. Tseprinskaia, N. I. Bogolapova and L. P. Tsepliaieva. *Tr Leningr Inst Epidem Microbiol Paster* 33:228-239, 1968.

7678 **USE OF THE ADSORPTION METHOD TO ESTIMATE THE DEGREE OF FLEXNER-AGGLUTININ SPECIFICITY IN THE BLOOD OF CHILDREN WITH ACUTE DYSENTERY.** *(Rus.)* Ivanova, V. V. (Inst. Child. Infect. Leningrad, USSR). *Tr Leningr Inst Epidem Microbiol Paster* 33:278-281, 1968.

7679 **FURTHER OBSERVATION OF SALMONELLA CARRIERS.** *(Rus.)* Arbuzova, V. A. *Tr Leningr Inst Epidem Microbiol Paster* 33:341-352, 1968.

7680 **SOME RESULTS OF STUDYING THE COLICINOGENOUS ACTIVITY OF *SHIGELLA SONNEI*.** *(Rus.)* Idina, M. S., A. P. Bondarenko and S. A. Semenova. *Tr Leningr Inst Epidem Microbiol Paster* 33:320-328, 1968.

7681 **EVALUATION OF THE EFFICIENCY OF MEASURES TO PREVENT *ESCHERICHIA COLI* ENTERITIS. II.** *(Rus.)* Khazenson, L. B. *Tr Leningr Inst Epidem Microbiol Paster* 33:222-227, 1968.

7682 **SOME PROBLEMS OF SALMONELLOSIS EPIDEMIOLOGY. (EPIDEMIOLOGICAL SIGNIFICANCE OF MAN AS THE SOURCE OF INFECTION.)** *(Rus.)* Arbuzov, V. A. *Tr Leningr Inst Epidem Microbiol Paster* 33:353-357, 1968.

7683 **THE COMPARATIVE CLINICAL-MICROBIOLOGICAL CHARACTERISTICS OF GROUP AND SPORADIC DISEASES CAUSED BY *SALMONELLA TYPHI MURIUM*.** *(Rus.)* Chakhtinskaia, M. G. *Tr Leningr Inst Epidem Microbiol Paster* 33:358-363, 1968.

7684 **ETIOLOGY OF ACUTE INTESTINAL DISEASES IN NEWBORNS.** *(Rus.)* Arbuzova, V. A. *Tr Leningr Inst Epidem Microbiol Paster* 33:200-209, 1968.

7685 **THE BEHAVIOR OF BLOOD SERUM PROTEINS AND PROTEIN FRACTIONS IN INFANTS WITH DIARRHEA.** *(Pol.)* Szczepański, Z. *Przegl Lek* 24(4):411-415, 1968.

7686 **PROBLEMS OF *ESCHERICHIA COLI* ENTERITIS IMMUNOLOGY OF INFANTS. I. SEROLOGICAL DIAGNOSIS OF *ESCHERICHIA COLI* ENTERITIS.** *(Rus.)* Khazenson, L. B. (Pasteur Epidemiol. Inst., USSR), T. Ia. Gennad'ieva, T. A. Patrusheva, N. N. Davidenkova and N. P. Davydova. *Tr Leningr Inst Epidem Microbiol Paster* 33:135-144, 1968.

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7690 **PROBLEMS OF *ESCHERICHIA COLI* ENTERITIS IMMUNOLOGY OF INFANTS. VI. SOME MECHANISMS OF DIFFERENT SENSITIVITY OF INFANTS TO DYSENTERY AND *ESCHERICHIA COLI* ENTERITIS.** *(Rus.)* Khazenson, L. B. *Tr Leningr Inst Epidem Microbiol Paster* 33:176-182, 1968.

7691 **INTESTINAL LESIONS DURING EXPERIMENTAL SALMONELLA INFECTION.** *(Rus.)* Belianin, V. L. *Tr Leningr Inst Epidem Microbiol Paster* 33:364-371, 1968.

7692 **AN AUTOPSY CASE OF MEDIASTINAL GASTROENTEROGENOUS CYST IN AN INFANT.** *(Jap.)* Tsuchiyama, H., T. Tokunaga, H. Tominaga and N. Dateki. *Jap J Cancer Clin* 14(9):812-815, 1968.

7693 **PRÉCIS DE GASTRO-ENTÉROLOGIE (SUMMARY OF GASTROENTEROLOGY).** *(Fr.)* Varay, A. Paris, Masson et Cie, 896 pp.

7694 **MESENTERIC CYSTS. [CASE REPORT]** *(E.)* Mehta, R. B. (M. A. M. Coll., New Delhi, India), N. Singh and Satyanand. *Indian J Surg* 29(11):610-618, 1967.

7695 **HOOKWORM INFESTATION IN IMMIGRANT MAURITIAN NURSES.** *(E.)* Marr, T. C. K. (Stacathro Hosp., Brechin, Scotland). *Practitioner* 199(1191):353-354, 1967.

7696 **LAPAROSCOPIC EXAMINATIONS IN THE DIAGNOSIS OF SOME DISORDERS IN ABDOMINAL ORGANS.** *(It.)* Barboni, A. (S. Anna Main Hosp., Ferrara, Italy), G. Golinelli and A. Melli. *Arcisped S Anna Ferrara* 20(4):549-588, 1967.

7697 **RELIEF FROM CONSTIPATION IN OBSTETRICS.** *(Ger.)* Reinold, E. (1st U. Women Clin., Vienna, Austria). *Wien Med Wschr* 117(47):1013-1015, 1967.

7698 **EPIDEMIOLOGY OF FOODBORNE SALMONELLOSIS.** *(E.)* Steele, J. H. (Natl. Communicable Dis. Ctr., Atlanta, Georgia) and M. M. Galton. *Health Lab Sci* 4(4):207-212, 1967.

7699 **USAGE OF PLASTIC ADHESIVES IN ACUTE PERITONITIS.** *(Fr.)* Quijano Narezo, M. and R. Alvarez-Cordero. *J Chir (Paris)* 94(6):521-528, 1967.

7700 **TREATMENT OF STRONGYLOIDIASIS BY THIABENDAZOLE. 50 CASES.** *(Fr.)* Gentilini, M., M. Therizol and C. Carbon. *Med Afr Noire* 14(12):625-626, 1967.

7701 **SHIGELLOSIS IN CYNOMOLGUS MONKEYS *(MACACA IRUS)*. V. RESISTANCE ACQUIRED BY THE REPETITION OF EXPERIMENTAL ORAL INFECTION WITH *SHIGELLA FLEXNERI* 2A AND FLUCTUATION OF SERUM AGGLUTININ TITER.** *(E.)* Honjo, S. (Natl. Inst. Hlth., Tokyo, Japan), M. Takasaka, T. Fujiwara, M. Kaneko, K. Imaizumi, H. Ogawa, K. Mise, A. Nakamura and R. Nakaya. *Jap J Med Sci Biol* 20(4):341-348, 1967.

7702 **ENTEROPATHOGENIC *ESCHERICHIA COLI* ASSOCIATED WITH DIARRHEA IN CHILDREN AND ADULTS.** *(E.)* Sakazaki, R. (Natl. Inst. Hlth., Tokyo, Japan), K. Tamura and M. Saito. *Jap J Med Sci Biol* 20(5):387-399, 1967.

7703 **EPIDEMIOLOGICAL INVESTIGATIONS OF TYPHOID AND PARATYPHOID FEVER IN JAPAN WITH AID OF THE PHAGE TYPING METHOD. I. DISTRIBUTION OF PHAGE-TYPES OF *SALMONELLA TYPHI* AND *SALMONELLA PARATYPHI B* IN JAPAN, 1956-1965.** *(E.)* Fukumi, H. (Inst. Hlth., Tokyo, Japan), M. Ohashi, N. Zaitu, T. Nojima, H. Sato and M. Uchida. *Jap J Med Sci Biol* 20(6):447-460, 1967.

7704 **VIRULENCE OF SHIGELLA ISOLATED FROM HEALTHY CARRIERS.** *(E.)* Nakamura, A. (Natl. Inst. Hlth., Tokyo, Japan). *Jap J Med Sci Biol* 20(3):213-223, 1967.

7705 **GASTROINTESTINAL COMPLICATIONS OF RADIOTHERAPY.** *(E.)* Gillies, M. (Royal Prince Alfred Hosp., Sydney, Australia) and A. Skyring. *Aust Radiol* 11(3):254-260, 1967.

7706 **CLINICAL TRIALS WITH DEHYDROEMETINE AND PARAMOMYCIN IN ACUTE AMOEBIC DYSENTERY IN CHILDREN.** *(E.)* Achar, S. T. (Women Child. Hosp., Madras, India) and G. V. Rama Row. *J Indian Med Ass* 49(8):370-372, 1967.

7707 **GENERALITIES ON FOOD ALLERGIES: THE SEMEIOLOGY, ALLERGENICS, THE CLINICAL PICTURE.** *(Fr.)* Rungs, H. M. (Rabat, Morocco). *Maroc Med* 47(506):643-646, 1967.

7708 **CLINICAL CHANGES IN FOOD ALLERGIES.** *(Fr.)* Rungs, H. M. (Rabat, Morocco). *Maroc Med* 47(506):647-650, 1967.

7709 **GASTRO-DUODENO-JEJUNAL DYSKINESIS IN BLACK AFRICA.** *(Fr.)* Pene, P. and M. Sankale. *Med Afr Noire* 14(11):561, 1967.

7710 **TREATMENT OF INFANT DIARRHEAS.** *(E.)* Alberts, M. E. (Des Moines, Iowa). *J Iowa Med Soc* 57(9):896-898, 1967.

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7711 **THE EXAMINATION OF SAMPLES INFECTED WITH MULTIPLE SALMONELLA SEROTYPES.** *(E.)* Harvey, R. W. S. (Publ. Hlth. Lab., Cardiff, Wales) and T. H. Price. *J Hyg (Camb)* 65(3):423-434, 1967.

7712 **SYMPTOM DIAGNOSIS: OPTIMAL SUBSETS FOR UPPER ABDOMINAL PAIN.** *(E.)* Scheinok, P. A. (Hahnemann Med. Coll., Philadelphia, Pa.) and J. A. Rinaldo Jr. *Comput Biomed Res* 1(3):221-236, 1967.

7713 **BLIND POUCH SYNDROME. A COMPLICATION RESULTING FROM LATERAL ANASTOMOSIS.** *(E.)* Peltokallio, P. (U. Cent. Hosp., Helsinki, Finland). *Ann Chir Gynaec Fenn* 57(3):321-324, 1968.

7714 **INTUSSUSCEPTION IN ADULTS.** *(E.)* Peltokallio, P. (U. Cent. Hosp., Helsinki, Finland). *Ann Chir Gynaec Fenn* 57(3):315-320, 1968.

7715 **AMOEBIC PERICARDITIS.** *(E.)* D'Cruz, I. A. (Gen. Hosp., Bombay, India) and K. Ramamoorthy. *J Indian Med Ass* 49(7):342-343, 1967.

7716 **GASTROINTESTINAL HEMORRHAGES. 46 CASES.** *(Por.)* Vilela, M. P. (Munic. Hosp. São Paulo, Brazil), J. R. da Silveira, T. I. Pricoli, S. D. Giannini, M. Cabeça, L. Raimo and M. C. de Marco. *Hospital (Rio)* 72(2):439-449, 1967.

7717 **DISTOMIASIS CAUSED BY *FASCIOLA HEPATICA* IN SOME PARTS OF WESTERN FRANCE. MORE THAN 400 CASES.** *(Fr.)* Doby, J. M. (French Soc. Parasitology, Montpellier, France), P. Hocquet, J. C. Beaucornu, G. Chiche, M. Mevel-le Bideau and B. Rault. *Ouest Med* 20(22):1373-1381, 1967.

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## LANGUAGE ABBREVIATIONS

| | | | |
|---|---|---|---|
| Afr. | Afrikaans | It. | Italian |
| Ar. | Arabic | Jap. | Japanese |
| Bul. | Bulgarian | Kor. | Korean |
| Ch. | Chinese | Latv. | Latvian |
| Cz. | Czech | Lith. | Lithuanian |
| Dan. | Danish | Nor. | Norwegian |
| Dut. | Dutch | Pol. | Polish |
| E. | English | Por. | Portuguese |
| Eston. | Estonian | Rum. | Rumanian |
| Fin. | Finnish | Rus. | Russian |
| Fl. | Flemish | Ser. | Serbo-Croatian |
| Fr. | French | Sl. | Slovak |
| Ger. | German | Sp. | Spanish |
| Gr. | Greek | Sw. | Swedish |
| Heb. | Hebrew | Th. | Thai |
| Hun. | Hungarian | Turk. | Turkish |
| Ic. | Icelandic | Uk. | Ukrainian |
| In. | Indonesian | Viet. | Vietnamese |

## ABBREVIATIONS USED IN ABSTRACTS

| | |
|---|---|
| ACTH | adrenocorticotropic hormone |
| ADP | adenosine diphosphate |
| AMP | adenosine monophosphate |
| ATP | adenosine triphosphate |
| BSP | sulfobromophthalein |
| C | degrees centigrade |
| cm | centimeter(s) |
| CNS | central nervous system |
| cpm | counts per minute |
| DNA | deoxyribonucleic acid |
| e.g. | for example |
| g | gram(s) |
| μg | microgram(s) |
| hr | hour(s) |
| i.m. | intramuscular |
| i.p. | intraperitoneal |
| IU | international unit(s) |
| i.v. | intravenous |
| kg | kilogram(s) |
| $LD_{50}$ | median lethal dose(s) |
| LDH | lactic acid dehydrogenase |
| m | meter(s) |
| M | molar |
| mEq | milliequivalent(s) |
| mM | millimolar |
| μM | micromolar |

| | |
|---|---|
| mC, μC | milli-, microcurie(s) |
| mg | milligram(s) |
| min | minute(s) |
| ml | milliliter(s) |
| mm | millimeter(s) |
| MTD | maximum tolerated dose |
| ng | nanogram ($10^{-9}$) |
| pg | picogram ($10^{-12}$) |
| p.o. | orally |
| ppm | parts per million |
| r | Roentgen |
| RBC | red blood cells (erythrocytes), red blood count |
| resp. | respectively |
| Rev. | review (only in citations) |
| RNA | ribonucleic acid |
| s.c. | subcutaneous |
| sec | second(s) |
| SGOT | serum glutamic-oxalacetic transaminase |
| SGPT | serum glutamic-pyruvic transaminase |
| U | unit(s) |
| UV | ultraviolet |
| WBC | white blood cells (leukocytes), white blood count |
| yr | year(s) |

# PRE-CLINICAL SCIENCES

## MORPHOLOGY, CELLULAR STRUCTURE AND HISTOCHEMISTRY

7718 **STUDIES ON THE SUBUNIT STRUCTURE OF RABBIT LIVER FRUCTOSE DIPHOSPHATASE.** *(E.)* Sia, C. L. (Albert Einstein Coll. Med., Bronx, N. Y.) S. Traniello, S. Pontremoli and B. L. Horecker. *Arch Biochem* 132(1):325-330, 1969.

Rabbit liver fructose 1,6-diphosphatase is dissociated in sodium dodecyl sulfate or by treatment with maleic anhydride into 2 pairs of subunits of different molecular weight. Molecular weight determinations by high-speed sedimentation equilibrium and electrophoresis in polyacrylamide gels yield similar values for the 2 species, corresponding to 29-31,000 and 35-39,000 resp. The molecular weight of the native enzyme was found to be 130,700 ± 2,000. The presence of 2 different peptide chains is supported by hydrazinolysis experiments which yielded nearly 2 equivalents each of alanine and glycine. Since this enzyme has been shown to bind 4 equivalents each of substrate and AMP, the species detected in the present experiments may be dimers of catalytic and regulatory subunits, resp. A new procedure is described for estimating subunit size, based on polyacrylamide gel electrophoresis after treatment of the protein with maleic anhydride.

7719 **HYPERTROPHY OF THE SMALL INTESTINE AFTER ITS PARTIAL RESECTION IN THE RAT. ULTRASTRUCTURE OF THE INTESTINAL EPITHELIUM.** *(E.)* Skála, I. (Inst. Human Nutrit., Prague, Czechoslovakia) and V. Konrádová. *Amer J Dig Dis* 14(3): 182-188, 1969.

About 40-50 cm of the proximal small intestine was resected from 6 male Wistar rats about 10 cm beneath the duodenojejunal flexure. No food was given 1 day before and 2 days after the operation, but water was available. During 4 days after surgery 10 mg tetracycline was given i.p. The same agent was given to 6 control rats. Three weeks after the operation 2 rats were selected from each group on the basis of having weights closest to the average. After sacrifice, small pieces of mucosa were taken from each animal, 5 cm distal to the duodenojejunal flexure and 5 cm proximal to the ileocecal junction. The tissue was fixed and embedded in the usual manner. The ultrastructure of the cells in the epithelium of the controls corresponded to the descriptions in the literature. No differences could be seen in any of the animals (controls or resected) in the epithelial ultrastructure of cells from the jejunum or from the ileum. After resection the epithelium on the surface of villi does not differ ultrastructurally from controls. The epithelium is formed by completely differentiated cellular elements. The compensatory enlargement of the intestinal absorption surface is a result of the hypertrophy of the mucosal villi, and not of changes in the microvilli.

7720 **ATTEMPTED ISOLATION OF HEPATITIS VIRUSES IN MARMOSETS.** *(E.)* Parks, W. P. (Baylor Coll. Med., Houston, Tex.) and J. L. Melnick. *J Infect Dis* 120(5):539-547, 1969.

Inoculation of human hepatitis materials into cotton-topped marmosets was associated with the development of elevated serum transaminase and histologic hepatic changes; however, the proportion of marmosets demonstrating such changes was not significantly greater than that observed in a variety of control marmosets. Transmission studies demonstrated the presence of an infectious agent in the sera of both test and control animals with equal frequency. The development of elevated serum transaminase and histologic hepatic changes in inoculated and uninoculated marmosets was also associated with the development of resistance to challenge with the Barker strain of marmoset hepatitis. Conversely, strains recovered from marmosets failed to produce hepatitis in marmosets resistant to the Barker strain. The present data suggest an indigenous origin for the marmoset hepatitis virus, and militate against the use of the marmoset as a laboratory animal for the isolation of strains of human hepatitis virus.

7721 **A COMPARISON OF THE EFFECTS OF PARTIAL SURGICAL AND PARTIAL CHEMICAL ($CCl_4$) HEPATECTOMY ON MICROSOMAL CYTOCHROME $b_5$ AND $P_{450}$ AND OXIDATIVE N-DEMETHYLATION.** *(E.)* Barker, E. A. (Dept. Pathol., U. Washington, Seattle), M. Arcasoy and E. A. Smuckler. *Agents Actions* 1(1):27-34, 1969.

The effects of partial surgical hepatectomy and chemical ($CCl_4$) hepatectomy on microsomal cytochromes $b_5$ and $P_{450}$, and oxidative N-demethylation were measured. $CCl_4$-induced liver injury was associated with decreased levels of $P_{450}$ and both steps in oxidative N-demethylation of dimethylaniline (N-oxide accumulation and formaldehyde release). Cytochrome $b_5$ was rapidly restored to control levels. Surgical hepatectomy resulted in decreased cytochromes, decreased formaldehyde production, but increased N-oxide accumulation. These results were found in adrenalectomized animals, suggesting a direct effect of the hepatectomy.

7722 **CHARACTERIZATION OF MARMOSET HEPATITIS VIRUS.** *(E.)* Parks, W. P. (Baylor Coll. Med., Houston, Tex.), J. L. Melnick, W. R. Voss, D. B. Singer, H. S. Rosenberg, J. Alcott and A. M. Casazza. *J Infect Dis* 120(5):548-559, 1969.

A hepatitis virus was found to be serially transmissible in marmosets. The virus passed through a 50-nm filter, but not a 25-nm filter, was inactivated by ether and by heating at 56C for 30 min. Attempted infection of other primates revealed that the virus was species-specific for tamarin marmosets and was not infectious in cotton-eared marmosets or baboons. Incubation periods averaged 20 days and the duration of elevated serum transaminase usually ranged from 2 weeks to 3 months. Histological studies revealed hepatic perivascular portal inflammation with minimal parenchymal cell involvement. Attempts to demonstrate antibodies in human gamma globulin or in heated convalescent marmoset sera failed. In fact unheated 160-day postinoculation convalescent serum was itself infectious in marmosets. Although neutralizing antibodies to the marmoset hepatitis virus could not be detected, convalescent animals were typically resistant to reinoculation and did not develop repeated enzyme alterations. Long-term colony residents remained susceptible to infection in spite of close association with infected animals, suggesting minimal animal-to-animal spread. Because the virus has properties common to many of the arboviruses, the infected animals were tested for development of antibodies to a number of arboviruses, but no arbovirus antibodies were found.

7723 **THE DISTRIBUTION OF LIPID IN COLONIC MUCOSA.** *(E.)* Binder, H. J. (Dept. Med., U. Chicago, Ill.) and S. van Noorden. *Proc Soc Exp Biol Med* 131(4):1119-1123, 1969.

Ninety-two pieces of colonic mucosa; 32 from 13 normal subjects and 19 patients with a variety of nonspecific gastrointestinal diseases, 27 from 23 patients with ulcerative colitis, 20 from 12 patients with granulomatous colitis, and 13 from 12 with steatorrhea; were used in this study of the distribution of stainable lipid. Fat (in both right and left colon) was found frequently in the subnuclear portion of the surface epithelium and in the lamina propria in the control and all disease groups. Heavy fat staining in the supranuclear portion of the surface epithelium was found only in 7 patients, all with steatorrhea. Fat was not found in the supranuclear portion of the surface epithelium in any other subject. Colonic tissue from 5 dogs with cecostomies (6 controls) perfused with oleic acid emulsion also showed lipid in the supranuclear part of the surface cell. Lipid was never demonstrated prior to fat administration in these dogs, nor was fat identified in the surface epithelium in the 6 control dogs. Similar results were also obtained in man. Probably the lipid found in normal subjects and patients without steatorrhea did not, but the lipid observed in the supranuclear area may, originate from colonic luminal lipid.

7724 **CELLULAR REGENERATION IN THE GASTRIC MUCOSA OF THE DOG. THE EFFECTS OF VARIOUS STIMULANTS AND ULCEROGENIC DRUGS.** *(Fr.)* Gerard, A. (St. Pierre Hosp., Brussels, Belgium). *Biol Gastroent* 1:5-14, 1969.

The mitotic activity of dog fundic and antral gastric cells was studied using a method of blocking the cells in metaphase with colchicine (1 mg/kg). In the 1st group 4 animals were injected s.c., for a period of 4 hr 30 min, with pilocarpine (0.5 mg/kg every 90 min), and 5 animals with histamine (0.3 mg/kg every 60 min). In the 2nd group the dogs were injected daily i.m. with ulcerogenic drugs: 4 animals with cortisone (30 mg/kg), 6 with phenylbutazone (10-15 mg/kg), and 7 with reserpine (0.1 mg/kg). The average number of cells in metaphase, per 100 microscopic fields, measured in the controls, was 100 in fundic area, and 306 in antral area. These values decreased to 49 after pilocarpine, and 26 after histamine for the fundic area, and to 133 with pilocarpine, and 259 with histamine in the antral area. In the second group the average number of mitosis in metaphase in the fundic area decreased to 34 after cortisone, 34 after phenylbutazone, and 28 after reserpine; in the antral area to 114 after cortisone, to 44 after phenylbutazone, and to 66 after reserpine. Among the animals receiving ulcerogenic drugs, 2 ulcers of the fundic area and 1 of the antral area were observed 7-18 days after daily administration of cortisone; 4 animals had multiple ulcers in the fundic, antral, and duodenal areas, 4-7 days after daily injections of phenylbutazone; 4 animals had ulcers in the fundic and antral areas 2-3 days after daily administration of reserpine.

7725 **MORPHOLOGICAL EFFECTS OF ETHIONINE ON THE PANCREAS OF THE GOLDEN HAMSTER. A LIGHT AND ELECTRON MICROSCOPIC STUDY OF DEGENERATIVE CHANGES.** *(E.)* Boquist, L. (Inst. Pathol. II, U. Umeå, Sweden). *Acta Path Microbiol Scand* 76(1):91-105, 1969.

DL-ethionine (0.5 g/kg body weight) was administered i.p. to 30 Chinese hamsters. Twelve animals injected with saline served as controls. At intervals the animals were sacrificed and specimens taken from the pancreas for light and electron microscopic examination of degenerative changes. In the light microscope the acinar cells showed decrease of basal basophilia, cytoplasmic vacuoles, and eosinophilic bodies. The acinar lumina were dilated and irregular and contained light or dark masses and eosinophilic bodies. There was atrophy of the acinar parenchyma with replacement by adipose and fibrous tissue. Ultrastructurally, the acinar cells demonstrated dilatation of the endoplasmic reticulum, decreased number of ribosomes and zymogen granules disintegration of the mitochondria, as well as the occurrence of cytoplasmic fibrillar bodies. Focal accumulations of degenerated cellular components and necrosis of whole acinar cells were found. In the ducts there were goblet cells and occasionally, crystalline material occurred in the duct cells. Degranulation of the $\beta$-cells was found in the pancreatic islets. In a few islets some $\alpha_2$-cells showed signs of increased activity, whereas others disclosed marked degenerative changes. The $\alpha_1$-cells and the agranular cells were unaffected. Thick basement membranes were sometimes seen in the vessels of the exocrine and endocrine pancreatic parenchyma.

7726 **THREE-DIMENSIONAL STRUCTURE OF THE RAT SMALL INTESTINAL MUCOSA RELATED TO MUCOSAL DYNAMICS.** *(E.)* Loehry, C. A. (St. Thomas' Hosp., London, England) and B. Creamer. *Gut* 10(2):112-120, 1969.

The administration i.m. of a single 7.5 mg dose of methotrexate sodium into 14 male albino rats resulted in a period of diminished cell production due to mitotic arrest in the small intestinal mucosa for the first 3 days after injection, with the effect on mucosal structure of producing short hypoplastic villi. As the mucosa regenerated on days 4 to 6 after methotrexate there was a temporarily increased turnover state as the villi were reconstituted. The most prominent structural changes in the mucosa at this state were the hypertrophy and prominenc of the intervillous ridges, presumably as a response to the increased output of cells from the crypts. An increased turnover state in the small intestinal mucosa was demonstrated when 4 albino rats in the 16th day of lactation were injected i.p. with 100 $\mu$c of tritium-labelled thymidine. Four virgin control rats were used. The increased rate of epithelial cell production in the lactating rats caused hyperplasia of the villi and at the same time increased prominence of the intervillous ridges. Male albino rats infected by s.c. injection of 5,000 to 10,000 larvae of *Nippostrongylus brasiliensis* resulted in considerably increased epithelial cell loss with an increase in cell production in the crypts of the small intestinal mucosa. The increased cell loss produced shortening of the villi, and the increased cell output produced hypertrophy of intervillous ridges so that convoluted and flat mucosa were seen. These morphological features are characteristic of those seen in celiac disease. The mucosa molds and remolds with amazing rapidity when the dynamic state is altered, but the final structure can always be understood in reference to the normal migration lines of the epithelial cells.

7727 **MICROSCOPIC STUDY OF LIVER ORTHOTOPIC ALLOGENIC TRANSPLANTATION IN THE PIG.** *(Fr.)* Chomette, G. (Pitié-Salpêtrière Hosp., Paris, France), H. Garnier, J. P. Clot, Y. Pinaudeau, M. Auriol and C. Brocheriou. *Virchow Arch Path Anat* 347(2): 176-184, 1969.

In 10 orthotopic allogenic transplantations of porcine liver surviving from 24 hr to 171 days histomorphological variations in the graft were studied. Besides the initial risk of massive liver necrosis (3 animals died within 24-40 hr), acute rejection began early (3rd day) and reached maximum intensity at the end of the 1st week (3 deaths occurred on the 7th day). As in other kinds of transplantation (kidney, heart) the rejection was characterized by the presence of mononuclear cells (lymphocytes, blastoid cells) in the small vessels and adjacent mesenchyma. This reaction was generally moderate; a really massive inflammatory hepatitis was seen only once. In the animals which survived from 1 to 5½ months, it was surprising to note that the initial rejection-reaction tended to disappear: the portal granuloma was replaced by sclerosis about the biliary vessels; this sclerosis might be a possible cause of the hepatobiliary infection frequently observed during this period. In only 1 animal very thin strips of inflammatory sclerosis persisted delimiting large hepatic lobules. In the particular instance of porcine liver the initial reaction of rejection is followed by a real tolerance and from time to time by a compensatory hypertrophy of the graft.

7728 **MORPHOLOGIC AND FUNCTIONAL CORRELATES OF INTESTINAL BRUSH BORDERS.** *(E.)* Dobbins, W. O. III (VA Hosp., Washington, D. C.). *Amer J Med Sci* 258(3):150-171, 1969.

The complex morphologic structure of intestinal brush borders is discussed and electron micrographs of these structures presented. Whenever possible, structural characteristics were correlated with function. The microvillus core contains tubules rather than filaments, these tubules being approximately 60 Å in diameter. The apical vesicles of the terminal web are not to be involved in fat absorption. These apical vesicles participate in protein uptake in the fetal and suckling intestine and possibly in lysosome formation in the adult intestine. The microvillus plasma membrane and its associated surface coat are the major site of most of the active events taking place during intestinal absorption. This plasma membrane has the usual trilaminar unit structure seen in other membranes. Attached to the outer leaflet of the plasma membrane is a mucopolysaccharide coating, the surface coat, which has a filamentous structure and is remarkably stable in the *in vivo* state. Histochemical reactions indicate that the surface coat is composed of a sulfated, weakly acidic mucopolysaccharide. A number of enzymes have been localized to the surface coat and data suggest that the microvillus surface coat is continuously synthesized in the cell, transported to the cell surface, and lost into the lumen.

7729 **SMALL INTESTINAL MUCOSAL CELL PROLIFERATION AND BACTERIAL FLORA IN THE CONVENTIONALIZATION OF THE GERMFREE MOUSE.** *(E.)* Khoury, K. A. (Yale U. Sch. Med., New Haven, Conn.), M. H. Floch and T. Hersh. *J Exp Med* 130(3):659-670, 1969.

The relationship between intestinal colonization and the small bowel mucosal cellular proliferation rate during conventionalization of the germfree mouse was examined: 16 mice were maintained under standard germfree conditions, and 54 others were conventionalized. Migration of the small bowel epithelial cells was followed by radioautography with administration and quantitative bacteriological fecal analyses. The percentages of the villi labeled (as determined by cell count) 24, 48, and 72 hr following thymidine administration showed immediate progression in the conventionalized animals from the germfree villus migration time (4 days) toward the conventional villus migration time (2 days). The epithelial migration rate of animals conventionalized for 8 days was comparable to that of conventional animals. After conventionalization, aerobic and anaerobic organisms underwent a period of extensive multiplication; however, 72 hr later the number of these microorganisms cultured in the stool decreased and were similar to those recovered from normal animals. Coliforms and streptococci were recovered in large numbers only in the first days after conventionalization, while the *Bacteroides* were first recovered in significant numbers on the 5th day. Except for smaller numbers of *Bacteroides,* the bacterial populations in the stools of the conventionalized animals were qualitatively and quantitatively similar to those of true conventional mice by the 8th day. Adaptive balance between cell proliferation and sloughing, and thus migration rate, began immediately after conventionalization as bacterial populations established themselves throughout the gastrointestinal tract, and resulted in a doubling of the mucosal cell turnover after 8 days. Both the small intestinal epithelial cell migration rate and the intestinal microflora were then similar to those of conventional animals.

7730 **BIOSYNTHETIC PATHWAYS IN THE FORMATION OF INDIVIDUAL MOLECULAR SPECIES OF RAT LIVER PHOSPHOLIPIDS.** *(E.)* van Golde, L. M. G. (Lab. Biochem., State U., Utrecht, The Netherlands), G. L. Scherphof and L. L. M. van Deenen. *Biochim Biophys Acta* 176(3):635-637, 1969.

Rat liver microsomes and slices were incubated in the presence of both [2-$^3$H]glycerophosphate of [2-$^3$H]glycerol and [I-$^{14}$C]fatty acids. The very low ratios observed for phosphatidylcholine (PTC) and phosphatidylethanolamine (PTE) compared with the high ratios of phosphatidic acid and diglycerides demonstrate that in isolated microsomes, uptake of fatty acids in PTC and PTE proceeds mainly via acylation of endogenous lysophospholipids. Similar results were obtained when rat liver homogenates were used as enzyme source. Homogenization and isolation of cell particles may induce an impairment of the *de novo* synthesis or an increase of endogenous monoacylphosphoglycerides. When the isotopic ratios of PTC and PTE after 15 min incubation are compared with that of phosphatidic acid, it is evident that rat liver slices, in sharp contrast to isolated particles, are capable of considerable *de novo* synthesis of PTC and PTE. It was found that glycerol, after conversion into glycerophosphate, is esterified in a nonrandom fashion. In rat liver slices, a *de novo* synthesis via phosphatidic acid is highly operative for the formation of mono- and dienoic molecular species of PTC and PTE. However, as may be concluded from the relatively low incorporation of glycerol, the polyunsaturated molecules are synthesized mainly by acylation of endogenous lysophospholipids.

**7731 CONSIDERATIONS OF SOME SEROLOGIC REACTIONS FOR AUTOANTIBODIES AGAINST THE LIVER.** *(E.)* Mori, W. (Tokyo Med. Coll. Hosp., Japan), T. Suzuta and W. Hasegawa. *Amer J Dig Dis* 14(8):566-577, 1969.

The existence of autoantibodies to liver and kidney was determined at autopsy of 34 patients (18 males, 16 females with an age range of 14-74 yr) with various diseases. Tissue and heart blood were collected, and the reaction between the 2 evaluated with the Ouchterlony technique, complement-fixation tests, and the passive hemagglutination test (Boyden). Positive reactions from 1 or more tests were seen in 7 sera with the homogenate of autologous liver. The diseases were systemic lupus erythematosus (1), thrombotic thrombocytopenic purpura (1), cirrhosis (1), and malignant tumors (4).

**7732 IMMUNOLOGICAL STUDIES ON LIVER DISEASES. II. "LIVER-SPECIFIC" ANTIGEN OF MOUSE AND EFFECT ON MOUSE LIVER OF ANTISERUM TO THIS "LIVER-SPECIFIC" ANTIGEN.** *(E.)* Nakagawa, T. (Fac. Med., Kyoto U., Japan). *Jap Arch Intern Med* 16(3): 85-98, 1969.

An "organ-specific" antigen of mouse liver was detected using the Ouchterlony technique. This component of subfraction 50 of mouse liver microsomes was found in small amounts in the lung but not in the kidney or heart. This antigen is called "liver-specific" because it is present in much larger concentrations in the liver than in other organs. The fact that this antigen is also present in the lung may be because the liver and lung develop from the same germ layer. The cytotoxic effects on mouse liver of antiserum against "liver-specific" antigen were investigated *in vivo*. Kupffer cell mobilization in mice injected with antiserum was greater than in control animals. Congestion, vacuolization of hepatocytes and cell infiltration in the portal area were seen in the liver 2 hr after the injection of antiserum, and anisocytosis and an irregular arrangement of hepatocytes were noted after 24 hr. Neither animals injected with antiserum nor those injected with normal rabbit serum developed severe liver cell necrosis. After slight liver injury induced by $CCl_4$, antiserum against "liver-specific" antigen was inoculated into mice. The histological findings in the livers of these animals did not differ significantly from those of mice given $CCl_4$ and normal rabbit serum. The changes caused by $CCl_4$ seemed to obscure the effects of antiserum.

**7733 IMMUNOLOGICAL STUDIES ON LIVER DISEASES. I. PROPERTIES OF ANTI-LIVER ANTIBODIES AND THEIR APPEARANCE IN LIVER DISEASES.** *(E.)* Nakagawa, T. (Fac. Med., Kyoto U., Japan). *Jap Arch Intern Med* 16(3):67-84, 1969.

Using the complement fixation test a study was made of normal human liver extracts in 74 patients with liver diseases, 7 with systemic lupus erythematosus (SLE) and 32 with other diseases. Twelve of these showed an anticomplementary effect and were excluded. Among the patients with liver diseases 17 out of 64 (26.6%) had antiliver antibodies (ALA): acute hepatitis, (19.0%); chronic hepatitis (23.1%); liver cirrhosis, (28.6%); 2 cases of "lupoid hepatitis" and 1 case of primary biliary cirrhosis (100%). All cases of SLE, 3 of 30 cases (10.0% of miscellaneous diseases and none of 18 normal controls showed a positive ALA. The ALA were neither organ nor species-specific. Sera from patients with "lupoid hepatitis" and primary biliary cirrhosis showed higher ALA titers than from those with other liver diseases. All 7 cases of SLE showed high titers of ALA. Fluctuations of elevated ALA titers in the patient with typical lupoid hepatitis paralleled changes in results of liver function tests but a little later. Therefore, it was not clear whether or not the ALA of this patient represented a pathogenetic factor. The ALA in acute hepatitis, chronic hepatitis and liver cirrhosis showed no close correlation with abnormal liver function or with clinical course. The serum in typical lupoid hepatitis had an ALA of ME-resistant IgG, while, in atypical lupoid hepatitis, primary biliary cirrhosis, chronic hepatitis and SLE, the serum had an ALA of ME-sensitive IgG. The ALA of typical lupoid hepatitis and primary biliary cirrhosis reacted mainly to particulate fractions of liver homogenate, while those of atypical lupoid hepatitis, chronic hepatitis and SLE reacted mainly to supernatant. Therefore, the ALA of typical lupoid hepatitis, atypical lupoid hepatitis and primary biliary cirrhosis seemed to differ from one another. Human pathologic sera had IgG antibodies which were ME-sensitive. Sera containing ALA showed weak CFT reactions with the nuclear fractions of liver. The ALA appeared to be different from rheumatoid factor.

**7734 DIFFERENTIATION OF PHOSPHOLIPASES A IN MITOCHONDRIA AND LYSOSOMES OF RAT LIVER.** *(E.)* Waite, M. (Bowman Gray Sch. Med., Wake Forest U., Winston-Salem, N. C.), G. L. Scherphof, F. M. G. Boshouwers and L. L. M. van Deenen. *J Lipid Res* 10(4):411-420, 1969.

Highly purified mitochondria from rat liver contain a phospholipase A that catalyzes removal of 2-fatty acids, with a pH optimum above pH 8.0. Lysosomal preparations appeared to have 2 phospholipases A associated with them; 1 with a pH optimum at about pH 4.0, the other with a pH between 6.0 and 7.0. Mitochondrial phospholipase A hydrolyzed exogenous phospholipid as fast as or faster than endogenous phospholipid. The difference in specific radioactivity of $^{14}C$-ethanolamine-labeled endogenous nitochondrial phospholipid before and after incubation indicated that a fraction of mitochondrial phosphatidyl ethanolamine was hydrolyzed more rapidly than the mitochondrial phospholipids as a whole. Acyl bond hydrolysis of exogenous and endogenous phospholipid by mitochondria was stimulated by free fatty acid, $Ca^{++}$, or in certain cases, monoacyl phospholipids or by treatment that disrupts the mitochondrial membrane. Of various fatty acids tested, lauric, myristic, oleic, and linoleic were most effective. ADP and ATP inhibited mitochondrial phospholipase, probably because they compete for $Ca^{++}$ $Mg^{++}$ also behaved as a competitive inhibitor; the effect was overcome by relatively little $Ca^{++}$.

**7735 ORGAN CULTURE OF MUCOSAL BIOPSIES OF HUMAN SMALL INTESTINE.** *(E.)*

Browning, T. H. (Boston U. Sch. Med., Mass.) and J. S. Trier. *J Clin Invest* 48(8):1423-1432, 1969.

*In vitro* experiments of small intestinal mucosal function and metabolism using excised tissue have been limited to a few hr by the rapid epithelial cell necrosis which occurs with the usual incubation methods. A method for culturing human mucosal biopsies for up to 24 hr employing organ culture methodology has been developed and its application to studies of mucosal function demonstrated. Peroral biopsies were placed in organ culture plates and maintained with modified Trowell's medium in 95% $O_2$-5% $CO_2$ at 37C for 6-24 hr. To study cell proliferation, 2 $\mu$C of $^3$H-thymidine was added per ml of medium. To study fat absorption, biopsies were exposed to micellar solutions of linolenic acid, monoolein, and taurodeoxycholate in Krebs-Ringer buffer for 15 min after culture *in vitro* for 24 hr. After 24 hr of culture, villi were shorter and wider. Cells in the lamina were reduced in number. Light and electron microscopic morphology of epithelial cells compared favorably to those of control biopsies except in occasional areas of partial necrosis. Some absorptive cells were more cuboidal and contained more lysosomes; many appeared entirely normal. Most crypt cells appeared normal; some contained increased glycogen and lysosomes. Mitoses were present, and labeled cells were abundant in crypts of biopsies after 6 hr of incubation with $^3$H-thymidine containing medium. By 24 hr, labeled cells migrated to the base of the villi. After biopsies cultured *in vitro* were exposed to micellar lipid, numerous lipid droplets were identified in the cytoplasm of absorptive cells. Thus, after 24 hr *in vitro* under these culture conditions, many human small intestinal epithelial cells maintain near normal morphology, epithelial cell proliferation proceeds, and fat absorption occurs.

7736 **CERTAIN HISTOCHEMICAL PROPERTIES OF THE GASTROINTESTINAL TRACT MUCOSA OF WHITE RATS IN WATER DEFICIENCY.** *(Rus.)* Kalishuk, V. A. (Inst. Cytol. Genetics, Novosibirsk, USSR), Ie. Ie. Filiushina, L. I. Lazovskaia and V. V. Vinogradov. *Biull Eksp Biol Med* 65(6):106-109, 1968.

A study of morpho-histochemical properties of the gastrointestinal mucosa of white rats kept on an ordinary and dry diet was undertaken. The part of the gastrointestinal tract in maintaining the water balance in conditions of lack of water has been described in a number of physiological studies while only very few studies on the histomorphology have been undertaken. It was found that a dry diet leads to a marked production of mucin. The mucous membrane changes in the stomach of animals receiving the dry diet showed most distinct changes in the fundal portion of the stomach. In performing the Schick reaction not only the cells of the glandular layer but also a marked part of the cells of the neck of the glands and surrounding parts showed intensive staining. On the 6th day of the dry diet there appeared an intensive latent metachromasia. About the 12th day it appeared in the area of the fundal glands and became very persistent. The increase of the number of cells with intensive Schick stain in the cellular layer and in the fundal layer can be accepted as a morphological expession of increased mucin production. The small intestine reacts with an increased number of chalice cells in the mucous membrane. It is suggested that the increased production of mucin in the gastrointestinal tract during the dry diet is a compensation mechanism and a morpho-histochemical adaptive reaction.

7737 **CHARACTERISTICS OF ALLERGENIC ACTIVITY OF THE PREPARATIONS FROM THE MICROBES OF THE INTESTINAL GROUP.** *(Rus.)* Runova, V. F. (Tarasevich Control Inst. Med. Biol. Preparations, Moscow, USSR) and Z. M. Andreieva. *Zh Mikrobiol* 45(9): 93-101, 1968.

7738 **INTESTINAL MICROFLORA AND THE CONTENT OF GROUP B VITAMINS IN THE BLOOD OF TUBERCULOUS PATIENTS.** *(Rus.)* Vil'shanskaia, F. L. (Moscow Inst. Microbiol., Epidemiol., USSR), R. V. Epshtein-Litvak, G. S. Klochkova, M. A. Krasheninnikova and T. V. Tarasova. *Zh Mikrobiol* 45(9): 116-122, 1968.

7739 **THE SIGNIFICANCE OF THE MORPHOLOGICAL CHARACTERISTICS OF BLOOD VESSELS AND NERVES OF THE MESENTERY DURING MOBILIZATION OF INTESTINAL TRANSPLANTS FOR REPLACING THE STOMACH.** *(Rus.)* Bondalevich, V. Ia. (Minsk Med. Inst., USSR). *Klin Khir (Kiev)* (6):36-42, 1968.

7740 **STANDARDIZATION OF *E. COLI* STRAINS IN FECES OF CHILDREN IN THE FIRST HALF YEAR AND THE FORMATION OF ANTIBODIES AGAINST THE FOUND TYPES.** *(Cz.)* Nejedlá, Z. (Inst. Care Mother Child, Prague, Czechoslovakia), E. Štrajbr and A. Lanc. *Cesk Pediat* 22(10):907-912, 1967.

7741 **ULTRASTRUCTURAL STUDY OF A CASE OF TYPE III GLYCOGENOSIS.** *(Fr.)* Paluello, F. M. (Biol. Med. Committee, Rome, Italy), C. B. Bruni, G. Sagui and L. Sagui. *Rev Int Hepat* 17(8):913-920, 1967.

7742 **A TEST OF ULTRA-MICROSCOPIC ANALYSIS OF THE STAGES AND DETAILS OF REGENERATION IN THE FIRST 10 DAYS OF MAJOR HEPATECTOMY IN THE DOG.** *(Fr.)* Feroldi, J. (Lyon, France) and Y. Mallet-Guy. *Rev Int Hepat* 17(8):895-911, 1967.

7743 **THE RETICULO-ENDOTHELIAL CELLULAE OF THE LIVER AND THE SPACE OF DISSE.** *(Fr.)* Rouiller, C. (Geneva, Switzerland), R. Pictet, P. Nicolescu and L. Orci. *Rev Int Hepat* 17(8):827-854, 1967.

7744 **HISTOGENESIS OF THE INTESTINAL EPITHELIUM IN MAMMALS AND MAN.** *(Rus.)* Vasil'ieva, N. Ie. (1st Leningrad Med. Inst., USSR). *Arkh Anat* 53(12):37-46, 1967.

7745 **AN AGAR-DIFFUSION STUDY OF INHIBITION OF PEPTIC PROTEOLYSIS BY SULFATE POLYSACCHARIDES.** *(Fr.)* Berard, A. (Edouard-Herriot Hosp., Lyon, France), F. Martin and R. Lambert. *Gastroenterologia (Basel)* 108(4):209-218, 1967.

7746 **INTRAVITAL AND POST-MORTEM STUDY OF LIVER STRUCTURE CHANGES IN THE BURNED. [CASE REPORT]** *(E.)* Ionescu, A. (Hosp. Traumatology Plastic Surg., Bucharest, Rumania), N. Chiotan and V. Paulian. *Panminerva Med* 11(1/2):47-50, 1967.

7747 **ANTIGENIC COMPONENTS OF SERUM AND SERUM-LIKE ANTIGENIC COMPONENTS OF THE HEPATOCYTE AND URINE IN RATS POISONED WITH CARBON TETRACHLORIDE.** *(Sp.)* Martin, A. (Cordoba, Argentina), R. Perassi and C. Yantorno. *Rev Int Hepat* 17(6):613-620, 1967.

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7748 HISTOCHEMICAL COLORATION OF THE BILE PIGMENTS. *(Fr.)* Desmet, V. J. (Louvain, Belgium), A. M. Bullens, J. de Groote and K. Heirwegh. *Rev Int Hepat* 17(8):929-935, 1967.

7749 MICROFLORA OF THE MOUSE COLON AND ITS CHANGES UNDER ANTIBIOTIC ACTION. *(Rus.)* Kiselev, R. K. (Inst. Epidemiol. Microbiol., Moscow, USSR). *Antibiotiki* 13(8):708-712, 1968.

7750 EFFECT OF ENDOGENOUS AND EXOGENOUS ANDROGENS ON LENGTH AND WEIGHT OF THE INTESTINE IN MALE AND FEMALE RATS. *(Jap.)* Maekawa, K. (Tokyo Med. Coll., Japan), Y. Tsunenari and K. Kobayashi. *Acta Anat Nippon* 43(2):69-72, 1968.

7751 THE FINE STRUCTURE OF CLEAR FIBROBLAST-LIKE CELLS IN THE LAMINA PROPRIA OF THE SMALL INTESTINE. *(E.)* Piťha, J. (1st Dept. Pathol., Charles U. Prague, Czechoslovakia). *J Ultrastruct Res* 22(3/4):231-239, 1968.

7752 ULTRASTRUCTURE OF THE GASTRIC MUCOSA OF NORMAL LABORATORY FERRETS. *(E.)* Stephens, R. J. (Presbyterian U. Pennsylvania Med. Ctr., Philadelphia) and C. J. Pfeiffer. *J Ultrastruct Res* 22(1/2):45-62, 1968.

7753 AN AUTORADIOGRAPHIC AND BIOCHEMICAL STUDY OF OLEIC ACID ABSORPTION BY INTESTINAL SLICES INCLUDING DETERMINATIONS OF LIPID LOSS DURING PREPARATION FOR ELECTRON MICROSCOPY. *(E.)* Dermer, G. B. (U. California Sch. Med., Los Angeles). *J Ultrastruct Res* 22(3/4):312-325, 1968.

7754 ALTERATIONS IN PANCREATIC AND HEPATIC ULTRASTRUCTURE FOLLOWING ACUTE CYCLOHEXIMIDE INTOXICATION. *(E.)* Harris, C. (U. Kansas Med. Ctr., Kansas City), H. Grady and D. Svoboda. *J Ultrastruct Res* 22(3/4):240-251, 1968.

7755 DAILY CHANGES IN THE MITOTIC ACTIVITY AND GLYCOGEN CONTENT OF THE RAT LIVER AFTER SUSTAINED HUNGER. *(Rus.)* Sokolova, L. V. (Inst. Exp. Biol., Moscow, USSR). *Biull Eksp Biol Med* 65(2):101-103, 1968.

7756 LAMPREY LIVER AND ITS BILE DUCTS. *(E.)* Sterling, J. A. (Albert Einstein Ctr., Philadelphia, Pa.), D. R. Meranze and S. Winsten. *Int Surg* 49(2):157-161, 1968.

7757 ANTIGENIC PROPERTIES OF THE HUMAN AND RAT PANCREAS. *(Rus.)* Vel'bri, S. K. (Microbiol. Dept., Tartu U., USSR). *Biull Eksp Biol Med* 66(11):80-83, 1968.

7758 *IN VITRO* CULTIVATION OF THE PATHOLOGICALLY MODIFIED HUMAN AND RABBIT LIVER TISSUE. *(Rus.)* Blok, Iu. Ie. (Sci. Res. Inst. Gastroent., Moscow, USSR) and A. S. Loginov. *Biull Eksp Biol Med* 67(5):76-79, 1969.

7759 FURTHER STUDIES OF *IN VITRO* CYTOTOXICITY OF LYMPHOCYTES FOR COLONIC EPITHELIAL CELLS. *(E.)* Shorter, R. G. (Mayo Clin., Rochester, Minn.), M. Cardoza, K. A. Huizenga, S. G. Re Mine and R. J. Spencer. *Gastroenterology* 57(1):30-35, 1969.

7760 BIOSYNTHESIS OF LYSOPHOSPHATIDIC ACID FROM ATP AND 1-MONOOLEIN BY SUBCELLULAR PARTICLES OF INTESTINAL MUCOSA. *(E.)* Paris, R. (Lab. Anim. Physiol. Nutrit., Dijon, France) and G. Clement. *Proc Soc Exp Biol Med* 131(2):363-365, 1969.

7761 PROPOSED NOMENCLATURE AND CLASSIFICATION OF THE HUMAN PANCREATIC DUCTS AND DUODENAL PAPILLAE. STUDY BASED ON 200 POSTMORTEMS. *(E.)* Smanio, T. (Med. Fac., U. São Paulo, Brazil). *Int Surg* 52(2):125-134, 1969.

7762 ORGAN CULTURE OF ADULT MICE LIVER SUBJECTED TO CARBON TETRACHLORIDE. *(Rus.)* Bakirov, R. D. (N. F. Gamalei Inst. Epidemiol. Microbiol., Moscow, USSR), T. A. Ieliseieva, A. Ia. Fridenshtein and G. I. Abelev. *Biull Eksp Biol Med* 67(5):72-75, 1969.

7763 THE EFFECT OF CYCLOPHOSPHAMIDE ON THE ULTRASTRUCTURE OF THE SMALL INTESTINE. *(Ger.)* Wolf, M. (Inst. Cancer Res., Ger. Acad. Sci., Berlin, Germany), I. Ley and K. Klein. *Zschr Inn Med* 23(22):727, 1968.

7764 PERMANENT CHANGES IN THE FINE STRUCTURE OF RAT HEPATOCYTES FOLLOWING PROLONGED TREATMENT WITH 2-ACETYLAMINOFLUORENE. *(E.)* Flaks, B. (Dept. Exp. Path. Cancer Res., U. Leeds, England). *Europ J Cancer* 4(3):297-304, 1968.

7765 BEHAVIOR OF SOME ASPECIFIC IMMUNITY INDEXES IN VACCINATED RABBITS TREATED WITH GASTRIC MUCOPROTEIN. III. *(It.)* Alosi, C. (Dept. Clin. Pediat., U. Messina, Italy), A. Londrillo and E. Mazzaglia. *Arch Sci Med* 4(1):13-16, 1968.

7766 PROLIFERATION OF GASTROINTESTINAL CELLS. *(E.)* Lipkin, M. (Dept. Med., Cornell U., New York, N. Y.). *Recent Results Cancer Res* 17:56-59, 1969.

7767 CELL PROLIFERATION IN THE INTESTINAL EPITHELIUM. *(E.)* Lesher, S. W. (Allegheny Gen. Hosp., Pittsburgh, Pa.) and J. Bauman. *Recent Results Cancer Res* 17:49-56, 1969.

7768 IMMUNOLOGICAL STUDIES ON *IN VIVO* LIVER CATALASE-DEPRESSING SUBSTANCE. *(E.)* Fukuyama, Y. (Cancer Res. Inst., Kanazawa U., Japan) and Y. Kurata. *Gann* 60(2):199-203, 1969.

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7769 **CYTOLOGIC INVESTIGATIONS ON THE GASTRIC IRRIGATION FLUID. A PRELIMINARY REPORT.** *(It.)* Cavazzuti, F. (Inst. Clin. Med., U. Modena, Italy), F. Franchi, C. Stablum and A. Manenti. *G Clin Med* 50(4):283-291, 1969.

7770 **THE MITOTIC POTENTIAL OF FIXED PHAGOCYTES IN THE LIVER AS REVEALED DURING THE DEVELOPMENT OF CELLULAR IMMUNITY.** *(E.)* North, R. J. (Trudeau Inst., Saranac Lake, N. Y.). *J Exp Med* 130(2):315-323, 1969.

7771 **COMPARATIVE ANALYSIS OF HEPATIC MICROBODIES. (A REVIEW).** *(E.)* de la Iglesia, F. A. (Sheridan Park Res. Ctr., Ontario, Canada). *Acta Hepatosplen (Stuttgart)* 16(3):141-160, 1969.

7772 **ENZYMIC ACTIVITIES DURING THE TRANSFORMATION OF CRYPT TO COLUMNAR INTESTINAL CELLS.** *(E.)* Webster, H. L. (U. Sydney, Australia) and D. D. Harrison. *Exp Cell Res* 56(2/3):245-253, 1969.

7773 **HEPATIC CARCINOGENESIS THRESHOLD AND BIPHASIC MITOCHONDRIAL SWELLING RESPONSE IN THE GUINEA-PIG DURING DIETHYLNITROSAMINE ADMINISTRATION.** *(E.)* Arcos, J. C. (Tulane U. Sch. Med., New Orleans, La.), M. F. Argus and J. B. Mathison. *Experientia* 25(3):296-298, 1969.

7774 **PHYLOGENETICAL PERSISTENCE OF THE NON-MAST CELL HISTAMINE STORES OF THE DIGESTIVE TRACT: A COMPARISON WITH MAST CELL HISTAMINE.** *(E.)* Reite, O. B. (Ullevaal Hosp., Oslo, Norway). *Experientia* 25(3):276-277, 1969.

See also: 7809,7834,7931,7932,8111,8112,8120,8137,8145,8182,8227,8228,8265,8303,8371,8406,8430,8547,8575,8639,
8641,8668,8670 ,8697,8748,8752,8756,8759,8764,8771,8779,8788,8887,8953

7775 **EXCRETION OF UNCONJUGATED BILIRUBIN IN THE BILE OF GUNN RATS.** *(E.)* Callahan, E. W. Jr. (San Francisco Med. Ctr., U. California) and R. Schmid *Gastroenterology* 57(2):134-137, 1969.

In 4 homozygous (jj), jaundiced, male Gunn rats (which lack the enzymatic apparatus for bilirubin conjugation) i.v. infusion of sodium taurocholate resulted in moderate enhancement of bile flow and a 4-fold increase in unconjugated bilirubin excretion. Infusion of Gunn rat bile (2 animals) doubled bile flow and quintupled unconjugated pigment excretion. Infusion of conjugated bilirubin in fresh rat bile (3 animals) doubled bile flow and increased biliary excretion of unconjugated bilirubin about 30 times. The peak rate for biliary excretion of unconjugated bilirubin in these Gunn rats averaged 80 μg/hr which is comparable to the rate of conjugated pigment excretion in untreated normal rats. Bile collected during the peak excretion of unconjugated bilirubin was diazotized and the radioactive diazo derivatives were separated by paper chromatography. Over 85% of the recovered isotope was in the unconjugated pigment band whereas the conjugated pigment fraction contained no significant radioactivity. Perhaps the injected bilirubin diglucuronide forms a water-soluble complex with endogenous labeled unconjugated pigment which is then excreted in the bile. This complex presumably is pigment I ("bilirubin monoglucuronide"), thereby providing further evidence of the inhomogeneity of this pigment fraction. It remains, to be determined whether this complex formation facilitates transfer of unconjugated bilirubin from the liver cell into the canalicular bile or simply prevents reabsorption of unconjugated pigment from the bile ducts.

7776 **TRANSMURAL POTENTIAL DIFFERENCE AT THE LEVEL OF THE UPPER ESOPHAGEAL SPHINCTER IN MAN.** *(E.)* Beck, I. T. (Hotel Dieu Hosp., Kingston, Canada), T. F. McElligott and N. A. Hernandez. *Amer J Dig Dis* 14(7):456-462, 1969.

Using an improved method of recording transmural potential difference, a fall of potential difference was demonstrated at the level of the high pressure zone of the upper esophageal sphincter in normal subjects. The level where this negative deflection of potential difference occurs corresponds to the area where, in the upper esophagus, glands resembling the gastric cardiac glands are found. The potential difference over this area may be altered because of the difference in secretory activity between glands of the body of the esophagus and the area of the upper sphincter.

7777 **STUDIES ON THE POSITIONAL INTEGRITY OF GLYCERIDE FATTY ACIDS DURING DIGESTION AND ABSORPTION IN RATS.** *(E.)* Raghavan, S. S. (Dept. Biochem., Indian Inst. Sci., Bangalore, India). *Biochem J* 113(1):81-87, 1969.

Rats starved for 24 hr were separately given by intraduodenal injections 0.5 ml of a dispersion containing 10 mg of sodium taurocholate, with 50 mg of glycerol 1,3-dioleate 2[1-$^{14}$C]-palmitate, glycerol 1,2-dioleate 3[1-$^{14}$C]-palmitate, a mixture of [1-$^{14}$C]-palmitic acid and triolein, or a mixture of [1-$^{14}$C]-palmitic acid and oleic acid. At the end of 30 min, the net amount and radioactivity of the neutral-lipid components recovered from the intestinal lumen and mucosa and the position of the labelled palmitic acid in the mucosal triglycerides were determined. When glycerol 1,3-dioleate 2[1-$^{14}$C]-palmitate was administered, most of the labelled acid was retained in the di- and monoglycerides of the lumen; the triglycerides were the major components containing the radioactivity in the mucosa and 75-80% of the labelled acid was located at the β-position of these triglycerides. When glycerol 1,2-dioleate 3[1-$^{14}$C]-palmitate was administered, the labelled acid was readily split off in the lumen and virtually no radioactivity could be traced in the monoglyceride fraction; in the intestinal mucosa, triglycerides were again the chief components containing most of the radioactivity, and 80-85% of the labelled acid was esterified at the outer positions of the glycerol. When [1-$^{14}$C]-palmitic acid mixed with triolein was administered, the concentrations of free fatty acids increased markedly in the intestinal lumen and mucosa, and 80-88% of the radioactivity of the mucosal triglycerides was located at the outer positions of the glycerol. When [1-$^{14}$C]-palmitic acid mixed with oleic acid was administered, the labelled acid accumulated in the lumen as well as in the cell, and it was randomly incorporated into all 3 positions of the mucosal triglycerides.

7778 **EFFECT OF ACUTE HYPOXIA ON HEPATIC EXCRETORY FUNCTION.** *(E.)* Shorey, J. (U. Texas Southwestern Med. Sch., Dallas), S. Schenker and B. Combes. *Amer J Physiol* 216(6):1441-1452, 1969.

The effects of hypoxia on hepatic transport of $^{35}$S-sulfobromophthalein, (B$^{35}$SP), $^{131}$I-Rose Bengal-(RB$^{131}$I) and $^{3}$H-bilirubin were studied in normothermic, unanesthetized newborn guinea pigs and adult mice. In both species, exposure to 7% $O_2$-93% $N_2$ depressed excretion of each labeled compound from liver cells into bile, whereas the isotope content in plasma and liver increased. Uptake of B$^{35}$SP and RB$^{131}$I by mouse liver and BSP-conjugating capacity of guinea pig and mouse liver were undiminished. In adult rats, breathing 7.5% or 5.8% $O_2$ plus $N_2$ caused a significant reduction in bile flow and maximal bilirubin excretion (Tm). Addition of 5% $CO_2$ to these gas mixtures diminished the fall in $Pa_{O_2}$ in rats, and prevented (at 7.5% $O_2$) or reduced (at 5.8% $O_2$) the effects on bile flow. Addition of 5% $CO_2$ to 7% $O_2$-93% $N_2$ abolished the hepatic excretory defect and excess liver lactate in guinea pigs but neither was diminished in mice, which are more sensitive to hypoxia. Breathing 10.5% $O_2$-89.5% $N_2$ had no effect on bile flow in rats or hepatic RB$^{131}$I transport in mice. Acute hypoxia impairs hepatic transport at the excretory step between liver cells and canalicular bile. Hypoxia must be severe before hepatic excretory function is affected, at least in these species. Addition of 5% $CO_2$ reduces the adverse effect of environmental hypoxia on hepatic excretion, at least partly, by increasing $Pa_{O_2}$.

7779 **COMPARISON OF THREE ISOTOPIC METHODS FOR THE STUDY OF CALCIUM ABSORPTION.** *(E.)* Agnew, J. E. (Royal Free Hosp., London, England), A. K. Kehayoglou and C. D. Holdsworth. *Gut* 10(7):590-597, 1969.

Three methods for studying the absorption of $^{47}$Ca were compared in 19 normal subjects, and in 44 patients with various disorders of calcium absorption and metabolism. The results obtained by using a simple single crystal whole-body counter correlated very well with those obtained using carefully checked 7 day collections of stools and urine. The rare patient whose unusually large urinary excretion of $^{47}$Ca invalidates a whole-body counter method of studying absorption can be detected by a single 24-hr urine collection after the oral dose. The percentage excretion in the urine of $^{47}$Ca administered p.o. did not correlate with the amount absorbed but the ratio of urinary to absorbed $^{47}$Ca was shown to correlate with the percentage urinary excretion of a load administered i.v. of nonradioactive calcium. Plasma levels of $^{47}$Ca correlated poorly with more direct measurement of $^{47}$Ca absorption. $^{47}$Ca levels rose slowly during the first 3 hr after the oral dose in patients with poor absorption, but reached a peak at 1 hr in normal subjects. In addition $^{47}$Ca plasma levels rose slowly in patients with obstructive jaundice even if their calcium absorption was normal, indicating that in some patients calcium absorption can be delayed but ultimately normal. Plasma $^{47}$Ca levels gave a misleading low impression of absorption in patients with a positive calcium infusion test. However, in studying the effect of vitamin D treatment on calcium absorption, the changes in plasma $^{47}$Ca levels and in $^{47}$Ca whole body retention correlated adequately, and determination of $^{47}$Ca plasma levels may give a valid indication of changes in absorption in this type of study.

### 7780 INFLUENCE OF SODIUM ON CALCIUM TRANSPORT BY THE RAT SMALL INTESTINE.

*(E.)* Martin, D. L. (Dept. Biochem., U. Wisconsin, Madison) and H. F. de Luca. *Amer J Physiol* 216(6):1351-1359, 1969.

Calcium transport by everted sacs of Sprague-Dawley rat duodenum is greatly reduced when sodium is deleted from the incubation medium. Differences between these results and earlier reports of a lack of effect of sodium deletion are accounted for by differences in the incubation media used. Both long- and short-term experiments indicate that calcium moves freely across the brush border of the epithelial cell even in the absence of sodium, indicating that the quantitatively important site of action of sodium must be elsewhere in the system. Sodium may act at the basal-lateral membrane of the epithelial cell. The changes observed in the transmural potential due to substitution of mannitol or choline chloride for sodium chloride may also occur *in vivo* and thereby cause the increase in calcium absorption observed after dietary administration of lactose and similar compounds.

### 7781 EFFECTS OF ENTEROTOXIN B ON INTESTINAL TRANSPORT *IN VITRO.* *(E.)*

Sullivan, R. (Dept. Microbiol., U. Notre Dame, Ind.). *Proc Soc Exp Biol Med* 131(4):1159-1162, 1969.

The effect of enterotoxin B on intestinal transport was tested using an everted sac of the middle section of the small intestine in female Wistar rats (150-200 g). Severe inhibition on net transport at the toxin concentration of 2 mg/liter was observed. The net water transport was inhibited to nearly 1/3 of control values, and similar inhibition was seen in the transport of Na, K, and glucose. The chloride transport was inhibited to such an extent that the normally occurring net absorption was reversed in direction and resulted in net secretion. Lactic acid transport was least affected. Metabolic indices (oxygen uptake and lactic acid production) were not influenced by enterotoxin at concentrations of 2 or 20 mg/liter. The evidence could account for diarrhea, one of the symptoms arising from ingestion of enterotoxin in humans.

### 7782 INTESTINAL UPTAKE OF VALINE IN OBESITY. *(E.)*

Steiner, M. (Lahey Clin. Found., Boston, Mass.), H. R. Bourges, G. C. M. Farrish, J. R. Ross and S. J. Gray. *Amer J Med Sci* 257(4):234-241, 1969.

Fifteen normal and 10 obese (50-108% above ideal weight) patients were fasted for 8 hr before peroral intestinal biopsy under fluouroscopic control. $^{14}$C-Labelled valine in concentrations of 0.5, 1, 2, 4, 6, 8, and 10 mM was used to compare the uptake of the amino acid in normal and obese subjects. The uptake of valine in normal subjects revealed no significant difference between male and female and approached saturation at substrate concentrations of 8-10 mM. The intestinal mucosa of obese subjects accumulated more $^{14}$C-valine than the normal after incubation with higher concentrations. This increased uptake was statistically significant at the 1-5% level with concentrations of 2, 6, and 10 mM, and at the 1% level with 8 mM. The concentration in the intracellular water was about 2-7 times that of the incubating fluid indicating uphill transport. In the 2 obese subjects tested the DNA content of the intestinal mucosa was less than normal, suggesting a decrease in cell number and an increase in cell size. The increased amino acid uptake by the intestine in obesity may be an adaptive phenomenon to increased food intake.

### 7783 GASTROINTESTINAL ABSORPTION OF COPPER: STUDIES WITH $^{64}$Cu, $^{95}$Zr, A WHOLE-BODY COUNTER AND THE SCINTILLATION CAMERA. *(E.)*

Weber, P. M. (U. California Sch. Med., San Francisco), S. O'Reilly, M. Pollycove and L. Shipley. *J Nucl Med* 10(9):591-596, 1969.

A technique for measuring copper absorption is described in which $^{64}$Cu (100-500 $\mu$Ci) is administered twice. The 1st dose is given p.o. and after 1 week the 2nd dose is given i.v. Simultaneously with each dose, $^{95}$Zr oxalate (0.5 to 10.0 $\mu$Ci) is given p.o. as a nonabsorbable stool marker. One complete absorption study was performed in 5 controls, 3 in 1 and 4 in 1. Data obtained indicated a wide range of absorption values in normal subjects and absence of a well-defined carrier effect. After i.v. administration of copper, an average of 11.5% was excreted into the gastrointestinal tract (range 0-23%). In the normal subject, copper absorption was maximal during the 1st hr while the metal was in the stomach and duodenum; absorption continued for at least 3.5 hr. Urinary excretion of copper was negligible except during the administration of penicillamine. In 3 control subjects penicillamine tended to decrease both net absorption (or retention) of copper administered p.o. and fractional gastrointestinal excretion. Two patients with Wilson's disease, while taking penicillamine, showed nearly maximal absorption but "normal" gastrointestinal excretion of copper.

7784 THE TRANSPORT CAPACITY FOR BILIRUBIN IN RAT LIVER AND ITS RELATION TO BILE FLOW. *(E.)* van Damme, G. (St. Rafael Hosp., Louvain, Belgium) and V. Desmet. *Experientia* 25(8):813, 1969.

The *Tm* for i.v. bilirubin (3-8 mg initial dose followed by 23.5 mg/hr) in the liver of male Wistar rats (217-263 g) was found to be temperature dependent. At room temperature the apparent Tm in the recovery period was in the range of a 100 $\mu$g/100 g/min whether ether or barbiturate anesthesia had been used. At mean body temperature of 30C with ether anesthesia the Tm was 28.3 ± 8.93 $\mu$g/100 g/min. At 33C with barbiturate anesthesia the Tm was 63.2 ± 7.95 $\mu$g/100 g/min. Bile flow correlated significantly with the apparent Tm in all groups.

7785 AN ISOTOPE TECHNIQUE FOR MEASURING LACTOSE ABSORPTION. *(E.)* Salmon, P. R. (Bristol Royal Infirm., England), A. E. Read and C. F. McCarthy. *Gut* 10(8):685-689, 1969.

Expired radiocarbon dioxide was collected by a simple autotitration method after the ingestion o f 50 g of $^{14}$C-l-lactose. With this method, which is suitable for clinical application, 12 subjects with alactasia were readily separated from 24 normals, both groups being defined by strict criteria. This test, which may be used to measure the absorption of other sugars, would be especially useful for population surveys and could be used to investigate the distribution of disaccharidase deficiency. False low readings resulting from rapid plasma clearance of absorbed sugar do not occur with this method although they may do so in up to one in three lactose tolerance tests, thereby overestimating the prevalence of alactasia.

7786 TRACER STUDIES OF INTESTINAL CALCIUM ABSORPTION IN MAN. *(E.)* Lutwak, L. (Grad. Sch. Nutrit., Cornell U., Ithica, N. Y.). *Amer J Clin Nutr* 22(6):771-785, 1969.

Absorption of calcium was estimated in 77 subjects, including 43 normals, by 159 studies under varying conditions of diet and therapy. The techniques used were those of metabolic balance, p.o. $^{47}$Ca administration, i.v. $^{45}$Ca and $^{47}$Ca, and combinations of these. The results obtained were examined to correlate values obtained in different laboratories. The possible errors inherent in each estimate were appraised. No single "rapid" procedure is ideal for all clinical situations. The most reliable values may be obtained by the use of combined p.o. and i.v. tracers under conditions of complete metabolic balance collections. The simplest screening technique for calcium malabsorption is the estimation of *in vivo* retention 5 hr after p.o. administration of the tracer. The measurements obtained suggest that osteoporosis in males is of different etiology from that of females with fixed absorption and urinary excretion of calcium. Absorption of calcium in this small population of female patients with osteoporosis was within the range of normals.

7787 INTESTINAL ABSORPTION. *(E.)* Smyth, D. H., Ed. London, The British Council, 1967. 296 pp.

7788 WATER INGESTION AND EXCRETION IN TURKEYS WITH A RECTAL FISTULA. *(E.)* Scheiber, A. R. (Coll. Vet. Med., U. Minnesota, St. Paul) and H. E. Dziuk. *J Appl Physiol* 26(3):277-281, 1969.

7789 THE EFFECT OF NEOMYCIN AND EXPERIMENTAL COPROSTASIS ON THE EXCRETION OF SIMPLE PHENOLS IN THE RAT. *(E.)* Bakke, O. M. (Dept. Pharmacol., U. Bergen, Norway). *Scand J Gastroent* 4(5):419-423, 1969.

7790 POTASSIUM EXCHANGE IN THE PRESENCE OF HIGH CONCENTRATION OF POTASSIUM IN GUINEA PIG'S TAENIA COLI. *(E.)* Chujyo, N. (Toho U. Sch. Pharm. Sci., Chiba, Japan), S. Takahashi and S. Sekiguchi. *Jap J Pharmacol* 19(1):139-147, 1969.

7791 STUDY OF THE DIURESIS MECHANISM INDUCED BY SYNTHETIC BILE SALTS. *(Fr.)* Hoenig, V. (Prague, Czechoslovakia) and J. Hoenigova. *Rev Int Hepat* 17(6):511-518, 1967.

7792 PASSAGE OF ETHANOL ACROSS THE INTESTINAL WALL AND ITS EFFECT ON THE ORGANS OF THE ABDOMINAL CAVITY IN *IN VITRO*. *(Ser.)* Huković, S. (Med. Fac., U. Sarajevo, Yugoslavia), K. U. Malik and A. Smajkić. *An Boln Stojan* 6(2/3):305-309, 1967.

7793 MEASURING THE APPARENT INTESTINAL ABSORPTION OF CALCIUM IN THE RAT WITH THE HELP OF RADIOACTIVE CHROMIUM CHLORIDE. *(Fr.)* Cuisinier-Gleizes, F. (Metabolic Dis. Child., Paris, France), B. Desbuquois and H. Mathieu. *Rev Franc Etud Clin Biol* 13(4):398-404, 1968.

7794 KINETICS OF BILIARY DYE EXCRETION. INTRAHEPATIC CELL TRANSPORT OF ROSE BENGAL IN THE RABBIT. *(Fr.)* Sicot, C. (Beaujon Hosp., Clichy, France), A. Richard and J. P. Benhamou. *Rev Franc Etud Clin Biol* 13(5):522-524, 1968.

7795 ELECTROLYTE ABSORPTION FROM ISOLATED BOWEL SEGMENTS USED AS URINARY CONDUITS. *(E.)* Cook, R. C. M. (Child. Hosp., Sheffield, England), C. I. Franks, J. Lister, J. Pratt and R. B. Zachary. *J Pediat Surg* 3(1):24-31, 1968.

7796 SEROTONIN EXCRETION BY THE BOWEL UNDER THE INFLUENCE OF HYPERTONIC SOLUTIONS. *(Rus.)* Grossman, Iu. S. (Perm Med. Inst., USSR) and L. V. Povar. *Biull Eksp Biol Med* 66(11):34-37, 1968.

7797 ABSORPTION OF $^{212}$Pb FROM THE GASTROINTESTINAL TRACT OF MAN. *(E.)* Hursh, J. B. (U. Rochester Sch. Med. Dent., N. Y.) and J. Suomela. *Biol Med* (51):217-233, 1968.

7798 INTESTINAL ABSORPTION OF IRON. *(It.)* Ricci-Bitti, M. L. (Inst. Special Med. Pathol., U. Bologna, Italy). *Policlinico [Prat]* 75(33):1073-1076, 1968.

## ABSORPTION-EXCRETION

7799 **EFFECT OF FEL TAURI ON IRON ABSORPTION IN THE DIGESTIVE SYSTEM OF HEALTHY SUBJECTS.** *(Cz.)* Brodanová, M. (Fac. Postgrad. Med., Charles U., Prague, Czechoslovakia), V. Hoenig, V. Brodan, E. Kuhn, V. Kordač and J. Válek. *Cesk Gastroent Vyz* 22(7):443-447, 1968.

7800 **ABSORPTION AND SECRETION OF THE COLON. [EDITORIAL]** *(E.)* Phillips, S. F. (Mayo Clin., Rochester, Minn.). *Gastroenterology* 56(5):966-971, 1969.

7801 **RADIOIODINE STUDY OF THE EXCRETORY FUNCTION OF THE STOMACH.** *(Rus.)* Fateieva, M. N. (Inst. Med. Radiol., Moscow, USSR), P. P. Firsova, N. S. Androsov and Ie. G. Matveienko. *Med Radiol (Moskva)* 14(4):32-36, 1969.

7802 **THE DEVELOPMENT OF SELECTIVITY OF PROTEIN ABSORPTION FROM THE INTESTINE DURING SUCKLING IN THE RAT.** *(E.)* Jordan, S. M. (Dept. Physiol., U. Western Australia, Nedlands) and E. H. Morgan. *Aust J Exp Biol Med Sci* 46(4):465-472, 1968.

7803 **THE EFFECT OF THE LAXATIVE OXYPHENISATIN ON THE INTESTINAL ABSORPTION OF GLUCOSE IN RAT AND MAN.** *(E.)* Hart, S. L. (Guy's Hosp. Med. Sch., London, England) and I. McColl. *Brit J Pharmacol* 32(3):683-686, 1968.

7804 **BILE EXCRETION FUNCTION OF THE LIVER OF WHITE RATS BEFORE AND AFTER HEPATECTOMY.** *(Rus.)* Skakun, N. P. (Ternopol Med. Inst., USSR) and M. A. Carbarets. *Biull Eksp Biol Med* 65(6):52-54, 1968.

7805 **DIFFERENCES IN THE ACTIVE TRANSPORT BY THE INTESTINE OF THE RAT AND THE GUINEA PIG.** *(E.)* Larralde, J. (Dept. Physiol. Biochem. U. Navarra, Pamplona, Spain), A. Giraldez and M. Lluch. *Rev Esp Fisiol* 24(4):215-218, 1968.

7806 **EFFECT OF DICUMAROL ON THE INTESTINAL ABSORPTION OF SUGARS.** *(E.)* Ponz, F. (Fac. Sci., U. Navarra, Pamplona, Spain) and M. Lluch. *Rev Esp Fisiol* 24(4):203-206, 1968.

7807 **STUDY OF BILE SALT ABSORPTION BY THE CAT GALLBLADDER *IN SITU*.** *(Fr.)* Gerolami, A. (Sainte-Marguerite Hosp., Marseille, France) and H. Sarles. *Rev Franc Etud Clin Biol* 13(2):172-175, 1968.

7808 **COMPARATIVE EFFECTS OF LACTOSE, GLUCOSE AND SODIUM CHLORIDE ON THE TRANS-INTESTINAL TOTAL MOVEMENT OF WATER. STUDY IN NORMAL MAN BY THE INTESTINAL PERFUSION TECHNIQUE.** *(Fr.)* Rambaud, J. C. (Saint-Lazar Hosp., Paris, France), J. D. Sraer, N. Vidon and J. J. Bernier. *Rev Franc Etud Clin Biol* 13(4):341-350, 1968.

See also: 7735,7933,8548,8592,8665,8678,8680,8681,8795,8802,8951,8985

7809 **ON THE MONOAMINERGIC INNERVATION OF THE LIVER.** *(E.)* Ungváry, G. (U. Med. Sch., Budapest, Hungary) and T. Donáth. *Acta Anat (Basel)* 72(3):446-459, 1969.

Monoaminergic innervation of the liver was studied in the dog, cat, guinea pig, rat and the mouse, using the fluorescence technique of Falck and Hillarp, (*J. Histochem.* 10:348, 1962). Investigations were performed on all species, either without any treatment at all, or (to enhance the catecholamine reaction) after 100 mg/kg body weight nialamide i.p. 4 hr before sacrifice. Any reaction was considered due to catecholamines only if it was completely depleted by reserpine. Adrenergic nerve fibers were largely confined to the vessels; no convincing evidence of the innervation of the liver cells was found. Species differences in innervation were more marked in the nerve supply of the hepatic artery. Innervation of the portal vein branches was particularly rich, while monoaminergic fibers were sparse in the walls of the bile ducts. In general, the nerve elements do not enter the media of the vessels, a dense terminal meshwork being established at the border between media and adventitia. A very unusual type of adrenergic innervation was found in the larger hepatic veins of the dog, where the whole media was invaded by a dense nerve plexus. The few monoaminergic nerve fibers, that can be seen to enter the peripheral parts of the lobuli are interpreted as fibers innervating the so-called arterial sinusoids.

7810 **EFFECT OF CHOLECYSTOKININ, GASTRIN, SECRETIN, AND GLUCAGON ON HUMAN GALLBLADDER MUSCLE *IN VITRO*.** *(E.)* Cameron, A. J. (Mayo Clin. Found., Rochester, Minn.), S. F. Phillips and W. H. J. Summerskill. *Proc Soc Exptl Biol Med* 131(1):149-154, 1969.

Strips of muscle obtained from the walls of human gallbladders, judged grossly normal after cholecystectomy, were exposed to 4 gastrointestinal hormones by means of a drip technique, and a kymograph was used to measure motility. Gastrin and glucagon had no effect. Cholecystokinin-pancreozymin (CCK-PZ) in concentration of 4 U/100 ml and larger caused progressive shortening. With increasing concentrations the latent period was briefer. CCK-PZ also caused an increase in frequency but not in amplitude of superimposed contractions. The mean duration of CCK-PZ action was 18 min. Synthetic secretin at 10 U/100 ml had about 1/6 the activity of a similar concentration of CCK-PZ.

7811 **MECHANICAL ACTIVITY OF THE COLON: PHYSIOLOGICAL AND CLINICAL PHYSIOPATHOLOGICAL OBSERVATIONS.** *(It.)* Ramorino, M. L. (2nd Clin. Gen. Med., U. Rome, Italy), M. V. Ammaturo and C. C. Cassano. *Arch Ital Mal Appar Dig* 35(4):404-408, 1969.

Quantitative electromanometric studies of the colon demonstrated higher basal activity in the left colon of 15 normal subjects than in the proximal colon. The difference between the indices of motility of the left and right colon apparently corresponds to a hydrodynamic condition which is unfavorable to the shifting of the intestinal contents from right to left. Following a meal, the mechanical relationships between the left and right half of the colon are profoundly altered; pressor activity increases consistently in the left colon and the basal left-right mechanical gradient is reduced or inverted, resulting in a condition more favorable to transporting the contents from right to left. This appears to be the hydrodynamic basis of the so-called bastro-colic reflex. In 6 cases of diarrhea the left-right mechanical gradient was found to be reduced or inverted in the basal state and after meals this tendency was clearly accentuated. In 3 cases of spastic constipation the left-right basal mechanical gradient was similar in direction to the normal gradient, but became accentuated after eating.

7812 **EMPTYING OF THE STOMACH AFTER BILLROTH II RESECTION.** *(E.)* Mortensson, W. (U. Hosp., Lund, Sweden). *Radiologe* 9(6):205-208, 1969.

Using a conventional barium contrast medium (specific gravity 1.6-1.8) and either contrast medium A or B (specific gravity of 1), gastric emptying was studied in 11 patients who had undergone Billroth II resection. The conventional barium medium was passed through the residual stomach within 30 sec. Contrast media A and B were emptied at equal rates. In 1 patient with severe postcibal symptoms and 1 with mild symptoms the emptying times for light contrast media were 25 and 35 min, resp. From these results together with a brief review of the literature it was concluded that the activity of the jejunum is probably of the greatest importance for emptying of the residual stomach. Spastic conditions in the efferent loop retard emptying. Nonspecific inflammatory changes in the proximal jejunum, carbohydrates, and foodstuffs increase the peristalsis of the jejunum and thereby the emptying rate of the residual stomach. Light contrast media with a specific gravity of 1 with the addition of different provacative substances should be used in functional investigations of the stomach and small intestine.

7813 **EFFECTS OF EATING AND INTRALUMINAL FILLING ON ILEOCOLONIC JUNCTIONAL ZONE PRESSURES.** *(E.)* Kelley, M. L. Jr. (Dartmouth Med. Sch., Hanover, N. H.) and J. A. de Weese. *Amer J Physiol* 216(6):1491-1495, 1969.

Multiple-pressure profile determinations of the isolated ileocolonic segment were made in 4 dogs before and after feeding and in 4 others before and after instillation of simulated bowel contents (an aqueous suspension of plantago ovata coating). Water-filled open-tipped, and 5 x 10- and 7 x 7-mm balloon-covered catheters were moved at 0.5 cm intervals from the colon to the ileum of the trained, conscious animals. The presence of a zone of elevated pressure at the site of confluence of large and small gut was confirmed. Pressures at the junction and in the adjacent colon and ileum were slightly higher after the animals were fed but few values show a statistical significant difference. Injection of simulated bowel contents resulted in pressure increases of considerably greater magnitude many of which were significantly higher than the resting values. Junctional pressures were elevated in proportion to the increases which developed in the adjacent segments of colon and ileum.

7814 **ILEO-COLIC TRANSIT IN RATS SUBJECTED TO ILEO-CAECAL RESECTION.** *(E.)* Johansson, H. (Acad. Hosp., U. Uppsala, Sweden) and G. Nylander. *Acta Chir Scand* 135(5):455-458, 1969.

The ileocolic transit of a radioactive test substance ($Na_2Cr^{51}O_4$) was studied in 44 male, Sprague-Dawley albino rats after ileocecal resection. The quantitative distribution of the test substance in consecutive portions of the gastrointestinal tract was recorded and the results analyzed graphically and mathematically. The ileocecal valve was of no particular importance in the passage of the substance from the small intestine to the colon.

7815 **A RELATION BETWEEN GASTRODUODENAL MUSCLE CONTRACTIONS AND GASTRIC EMPTYING.** *(E.)* Weisbrodt, N. W. (U. Michigan Med. Ctr., Ann Arbor), J. N. Wiley, B. F. Overholt and P. Bass. *Gut* 10(7):543-548, 1969.

To characterize the antral and duodenal contractile activity patterns during gastric emptying. Contractile activity was monitored by extraluminal strain gauge force transducers and gastric emptying was measured using 3 serial test meals. The gastric emptying of a 200 milliosmol test meal of trisodium citrate was significantly more rapid than equal osmolar test meals of glucose or trisodium citrate with 10 mN oleic acid. The contractile activity of the gastric antrum was higher during emptying of the citrate test meal as compared to the other 2 test meals. The contractile activity of the duodenum was significantly higher for the citrate-fat and glucose test meals as compared with the citrate test meal. Gastric emptying is regulated in part by the relative contractile force of the antrum and duodenum. The exponential emptying rate of the stomach is directly related to the force of the antrum (as seen with the citrate test meal). Duodenal contractile activity also influences gastric emptying (as seen with the citrate-fat test meal). The greater rate of emptying occurs when there is relatively high antral and low duodenal activity; conversely, the slowest emptying occurs when there is relatively low antral and high duodenal activity.

7816 **INTESTINAL PERISTALSIS AFTER SURGERY ON ORGANS OF THE ABDOMINAL CAVITY.** *(Rus.)* Kataieva, G. A. (S. M. Kirov Milit. Med. Acad., Leningrad, USSR). *Klin Khir (Kiev)* (6):51-53, 1968.

7817 **HYPOTHALAMIC EFFECTS ON THE MOTOR ACTIVITY OF THE SMALL INTESTINE IN ACUTE RADIATION SICKNESS IN THE DOG.** *(Rus.)* Pochechuieva, G. S. (Inst. Exp. Med., Leningrad, USSR). *Biull Eksp Biol Med* 65(2):30-33, 1968.

7818 **THE EFFECT OF METOCLOPRAMIDE (MAXOLON) ON INTRAGASTRIC PRESSURE AND GASTRIC MOTILITY.** *(E.)* Bhaduri, T. (Wythenshawe Hosp., Manchester, England) and G. W. Bradley. *Clin Trials J* 6(1):13-17, 1969.

7819 **QUANTITATIVE ASSESSMENT OF THE EXPANDING AND CONTRACTING OF THE GALLBLADDER DURING DIFFERENT PHASES OF ITS ACTIVITY.** *(Rus.)* Kotel'nikova, V. I. (I. P. Pavlov Inst. Physiol., Leningrad, USSR). *Biull Eksp Biol Med* 68(8):18-20, 1969.

7820 **ELECTROGASTROGRAPHIC METHOD OF STUDYING STOMACH MOTILITY IN PATIENTS WITH THERMIC BURNS.** *(Rus.)* Pus'kov, N. L. (Kiev Med. Inst., USSR). *Klin Khir (Kiev)* (10):51-54, 1967.

7821 **THE EFFECT OF ANGIOTENSIN ON THE PERISTALTIC REFLEX OF THE ISOLATED GUINEA-PIG ILEUM.** *(E.)* Belesiin, D. B. (Dept. Pharmacol., Med. Fac., Belgrade, Yugoslavia). *Brit J Pharmacol* 32(3):583-590, 1968.

7822 **DISTURBANCE OF THE EVACUATORY FUNCTION OF THE RESECTED STOMACH.** *(Rus.)* Izmailov, G. A. (Kazan Med. Inst., USSR). *Klin Khir (Kiev)* (3):26-28, 1968.

7823 **ON THE EFFECT OF TRANSTHORACIC VAGOTOMY.** *(E.)* Daniel, E. E. (Dept. Pharm., U. Alberta, Edmonton, Canada). *Gastroenterology* 57(1):109-110, 1969.

7824 **PARASYMPATHETIC INNERVATION OF THE INTESTINES.** *(Rus.)* Korotkov, A. G. (Kazan State Med. Inst., USSR). *Arkh Anat* 56(6):92-108, 1969.

7825 **OCCURRENCE OF PROSTAGLANDIN $E_2$ IN THE HUMAN STOMACH, AND A STUDY OF ITS EFFECTS ON HUMAN ISOLATED GASTRIC MUSCLE.** *(E.)* Bennett, A. (King's Coll. Hosp. Med. Sch., London, England), J. G. Murray and J. H. Wyllie. *Brit J Pharmacol* 32(2):339-349, 1968.

7826 **EXPERIMENT WITH IMPLANTED NON-POLARIZING ELECTRODES FOR RECORDING OF ULTRASLOW POTENTIALS OF THE GASTROINTESTINAL TRACT IN CHRONIC EXPERIMENTS.** *(Rus.)* Sobakin, M. A. (Inst. Nutrit., Moscow, USSR) and D. P. Todorov. *Biull Eksp Biol Med* 65(4):120-122, 1968.

7827 **THE VAGINA-GASTROINTESTINAL REFLEX.** *(Jap.)* Mori, T. (Okayama U. Med. Sch., Japan). *J Physiol Soc Japan* 29(7):315-319, 1967.

See also: 8161,8162,8199,8213,8439,8483

**7828 ANALYSIS OF THE AMINO ACIDS IN THE PROTEIN RESIDUE OF THE GASTROINTESTINAL CONTENTS AFTER A TEST MEAL.** *(It.)* Barbara, L. (Inst. Special Med. Pathol. Clin. Methodol., U. Bologna, Italy), G. Fontana, P. Azzaroli and G. A. Lanfranchi. *Arch Ital Mal Appar Dig* 35(5):421-430, 1969.

The amino acid composition of the protein residue of gastrointestinal contents was qualitatively and quantitatively analyzed after the administration of a test meal. Studies were carried out on 3 normal subjects by means of a multiway bougie with sampling stations at the gastric, duodenal, jejunal and ileal levels. The samples were withdrawn at various intervals after the administration of a balanced meal containing 19 g of milk protein. After hydrolysis in a closed bomb-shaped apparatus, the protein residue was analyzed for amino acid composition by use of a Beckmann-Spinco apparatus. The values of the individual amino acids were expressed as the N % of the precipitate. The values of most of the amino acids tended to decrease progressively with time from the gastric to the ileal levels. Apart from this general decrease, some amino acids showed a progressive increase (glycine, cystine) or remained constant (aspartic acid, threonine). It was possible to analyze the processes of protein hydrolysis independently of the influences of absorption and demonstrated a differing velocity of hydrolytic release of individual amino acids.

**7829 EFFECT OF ACID INFUSION INTO VARIOUS LEVELS OF THE INTESTINE ON GASTRIC AND PANCREATIC SECRETION IN THE CAT.** *(E.)* Konturek, S. J. (Med. Sch., Krakow, Poland), J. Dubiel and B. Gabrys. *Gut* 10(9):749-753, 1969.

Intraduodenal infusion of increasing amounts of hydrochloric acid solution in 5 cats resulted in a stepwise increase in the volume of pancreatic secretion and output of bicarbonate, reaching about 90% of amounts attained with exogenous secretin infused i.v. in increasing doses (0.2 to 6.4 mg/kg/hr). Acid infusion into the different regions of the intestine of the same 5 cats (2.5-3.0 kg) stimulated pancreatic secretion only from the duodenum and upper jejunum, suggesting that the area of endogenous release of secretin by acid is confined to the upper part of the small bowel in the cat. Gastric acid secretion induced by pentagastrin (8 mg/kg/hr), but not by histamine (80 mg/kg/hr), was inhibited by acid perfusion of the duodenum. The acidification of other parts of the small intestine did not result in any change in gastric acid secretion induced either by pentagastrin or by histamine.

**7830 RESEARCH ON THE PROTEIN METABOLISM IN MAN.** *(Fr.)* Rosenoer, M. (London, England). *Rev Int Hepat* 17(6):505-510, 1967.

**7831 STUDY OF SULFOBROMOPHTHALEIN METABOLITES AND THEIR PRACTICAL CONSEQUENCES.** *(Fr.)* Charbonnier, A. (Paris, France). *Rev Int Hepat* 17(6):459-504, 1967.

**7832 STUDIES ON THE OESOPHAGEAL GROOVE REFLEX IN SHEEP AND ON THE POTENTIAL USE OF THE GROOVE TO PREVENT THE FERMENTATION OF FOOD IN THE RUMEN.** *(E.)* Ørskov, E. R. (Rowett Res. Inst., Aberdeen, Scotland) and D. Benzie. *Brit J Nutr* 23(2):415-420, 1969.

**7833 DIETARY FACTORS INFLUENCING THE DIGESTION OF STARCH IN THE RUMEN AND SMALL AND LARGE INTESTINE OF EARLY WEANED LAMBS.** *(E.)* Ørskov, E. R. (Rowett Res. Inst., Aberdeen, Scotland), C. Fraser and R. N. B. Kay. *Brit J Nutr* 23(2): 217-226, 1969.

### 7834 EFFECT OF STIMULATION OF GASTRIC ACID SECRETION ON THE HISTOENZYMOLOGY OF THE RAT GASTRIC MUCOSA.

*(Fr.)* Stoffels, G. L. (Brugmann Hosp., Brusells, Belgium) and W. Gepts. *Biol Gastroent* 1:15-20, 1969.

Gastric acid secretion was induced in Amsterdam rats by injections, once or repeated daily for 10 days, of histamine (50 mg/kg s.c.), or of reserpine (1 mg/kg i.m.). The activities of the following enzymes were measured in the gastric mucosa: succinic dehydrogenase (SDH), β-hydroxy-butyric dehydrogenase (BDH), LDH, isocitric dehydrogenase (IDH), glucose-6-phosphate dehydrogenase (G-6-PDH), α-glycerophosphate dehydrogenase (α-GPD), ATPase, non-specific esterase (Est α), alkaline phosphatase (AlkP), and acid phosphatase (AcP). The administration of histamine or reserpine once caused no variations in the enzyme activity of the gastric mucosa. After repeated administrations of reserpine, the rats lost weight and became sluggish. Their gastric mucosa had a normal macroscopic aspect. A higher activity of SHD (6+) than in the controls (4+) was observed. No modifications were found in the activity of the other enzymes. The rats receiving repeated doses of histamine had a normal aspect and behavior and no anomalies in the gastric mucosa. But with reserpine, there was an increase of SHD activity, without any modifications in the activity of other enzymes. An histoenzymatic study of the gastric mucosa after *in loco* stimulation of HCl by histamine submucosal injection (Tsukamoto's method) showed no variations in enzymatic activities. No gastric ulcers were seen after repeated reserpine injection. This might be because different rat strains have variable predispositions to gastric ulcer.

### 7835 EFFECT OF PROLONGED INTRAVENOUS INFUSION OF DEXTRAN ON GASTRIC SECRETION OF RATS BEARING PERMANENT GASTRIC FISTULAS.

*(E.)* Kowalewski, K. (Surg.-Med. Res. Inst., U. Alberta, Edmonton, Canada) and G. Chmura. *Arch Int Pharmacodyn* 179(2):407-415, 1969.

Adult male Wistar rats with permanent gastric fistula and permanent cannula inserted into the vena cava, were infused i.v. for 24 hr with normal saline or with 6% dextran (a hexose polysaccharide) in saline. The infusion rate was 120 ml/kg body weight; 24 hr. Gastric content was collected in 6 and 18 hr fractions, for 24 hr. A significantly lower 24 hr output of gastric juice (dextran - 13.3 ml, control - 20.2 ml); HCl (dextran - 0.93 mEq/volume control - 1.53); and pepsin (dextran - 348 mg/volume control - 645); was found in dextran infused animals. About 25% of juice was obtained in the first ¼ of infusion period in the control group (a steady rate); but in dextran infused rats secretion was slow during the first ¼. Fluorometrically determined blood histamine showed significant hyperhistaminemia in dextran infused rats in ½, 1 and 6 hr samples; with μg/100 ml values of 13.4, 19.0, and 16.9 for controls, and corresponding values of 32.4, 29.2, and 23.7 for dextran infused rats. The relationship was reversed in 24 hr samples, controls - 15.8, dextran - 10.8. Dextran of 135,000 molecular weight was used.

### 7836 COMPOSITION OF PARIETAL AND NON-PARIETAL COMPONENTS OF CANINE GASTRIC SECRETION.

*(E.)* Coder, D. M. (Mayo Grad. Sch. Med., Rochester, Minn.) and D. C. McIlrath. *Amer J Dig Dis* 14(5): 324-331, 1969.

The composition of the 2 components of gastric juice was directly measured by using vagally innervated fundal gastric mucosa in 6 dogs before and after loss of parietal cells had been induced by explantation. Microscopic studies of the mucosa were also made before and after. The concentrations of acid, sodium, potassium, chloride, and hexosamine were measured and compared with those reported for parietal and nonparietal components of gastric juice. Parietal cells were absent in the sections of explanted mucosa examined and the juice secreted was therefore uncontaminated by acid. The concentrations of electrolytes secreted by the explanted mucosa compared favorably with previous estimates of the composition of the nonparietal component of gastric juice. The nonparietal component of gastric juice had a distinct composition with narrow variations in concentrations of major electrolytes and could be analyzed directly.

### 7837 THE GASTROINTESTINAL STIMULUS TO INSULIN RELEASE I. SECRETIN.

*(E.)* Chisholm, D. J. (St. Vincent's Hosp., Sydney, Australia). *J Clin Invest* 48(8):1453-1460, 1969.

The gastrointestinal stimulus to the release of insulin has been investigated in man by the use of a radioimmunoassay for $^{125}I$ secretion. Six patients with pernicious anemia, 1 with duodenal ulcer, and healthy controls aged 19-43 yr were studied. Serum secretin levels rose rapidly after the oral ingestion of glucose or protein and preceded the elevation of serum insulin. An i.v. infusion of highly purified secretin caused a release of insulin when the serum secretin levels were within the physiological range. Infusion of hydrochloric acid into the duodenum caused an elevation of serum secretin and serum insulin levels in normal subjects. A similar response of secretin and insulin was seen after i.v. infusion of pentagastrin even when the acid stimulus to the duodenum was prevented. Pentagastrin (and gastrin) probably releases secretin by a direct humoral effect which is later fortified by the arrival of gastric acid in the duodenum. Secretin apparently participates in the augmentation of insulin release after oral stimuli, and a rapid sequence of humoral events takes place, gastrin releasing secretin and secretin releasing insulin. Subsequently secretin release would be augmented by a local stimulus in the duodenum and insulin release by the rising level of blood glucose or amino acids. This humoral system, which could also involve other gastrointestinal hormones, would provide a mechanism for facilitating the release of insulin to coincide with the onset of metabolite absorption.

### 7838 CRITICAL STUDIES OF THE PYLORUS LIGATED RAT (SHAY RAT).

*(E.)* Ishii, Y. (Res. Lab., Nippon Kayaku Co., Ltd. Tokyo, Japan). *Jap J Pharmacol* 19(1):125-133, 1969.

Various factors influencing the rumenal ulceration in the pylorus ligated Donryu and Sprague-Dawley rat were investigated using the experimental design of $L_8$ orthogonal array. Four factors consisting of 2 levels each and 3 interactions between 2 factors were investigated. The most appropriate condition for the screening of antiulcer agents was thereby delineated. The decrease in mucosal defense mechanism may be a cause of ulceration in addition to the peptic activity of gastric juice. The relationship between the body weight of the rat and the volume of gastric secretion was linear between 100 to 170 g after starvation. The volume and acidity of gastric juice increased in proportion to the gain in body weight up to 6 hr after pylorus ligation. Duodenal acidification suppressed the gastric secretion rate, but the humoral mechanism of the gastric phase had little effect on it. The pylorus ligated rat showed gastric hypersecretion the mechanism of which may be complicated.

### 7839 FURTHER CONSIDERATION OF THE MINIMUM DOSE OF HISTALOG NECESSARY TO PROVOKE A MAXIMAL SECRETORY RESPONSE. *(E.)*

Burke, E. L. (Naval Hosp., Philadelphia, Pa.) and J. E. Whetsell. *Amer J Dig Dis* 14(9):637-642, 1969.

To determine the minimal dose of i.m. Histalog necessary to evoke a maximal gastric acid response, 10 male subjects, 19-52 yr old, were tested with alternate doses i.m. of 1.5 or 2.0 mg Histalog/kg body weight. The results, expressed in terms of maximal output of acid/hr, showed no statistically significant differences. These results together with an analysis of previous reports led to the conclusion that the proper dose of i.m. administered Histalog for the augmented Histalog gastric analysis is 1.5 mg/kg.

### 7840 THE EFFECT OF SECRETIN, GLUCAGON, AND DUODENAL ACIDIFICATION ON PEPSIN SECRETION IN MAN. *(E.)*

Brooks, A. M. (U. California Sch. Med., Los Angeles), J. Isenberg and M. I. Grossman. *Gastroenterology* 57(2):159-162, 1969.

The stomachs of 7 normal male human subjects (mean age 44 yr) were continuously irrigated with 100 mM HCl and the gastric aspirate analyzed for pepsin content. Intravenous injection of pure, natural secretin (either 1 U/kg or 4 U/kg) and perfusion of the duodenum with 100 mM HCl strongly stimulated pepsin secretion. Intravenously injected glucagon (0.025 mg/kg) whose structure resembles secretin, had no effect on pepsin secretion.

### 7841 THE EFFECT OF GASTRIC SECRETAGOGUES ON GASTRIC MUCOSAL HISTAMINE AND HISTIDINE DECARBOXYLASE ACTIVITY IN RATS. *(E.)*

Sewing, K. Fr. (Dept. Pharmacol., U. Tübingen, Germany). *Life Sci* 8(13):783-789, 1969.

The effect of different gastric secretagogues on the histamine content and the histidine decarboxylase activity of scraped-off gastric mucosa has been examined in FW 49 Biberach female rats. A histamine release has been observed after 2 hr incubation with reserpine (40 μg/ml) and the gastrin-tetrapeptide (20 μg/ml). Compound 48/80, carbachol and insulin had no histamine releasing effect. The histidine decarboxylase activity was enhanced by carbachol and reserpine, but was not affected by compound 48/80, the gastrin-tetrapeptide and insulin. The absence of effect of insulin on histamine release and histidine decarboxylase activity of the rat stomach agrees with the general view that insulin exerts its action on the stomach only *in vivo* via the vagus nerve. The results demonstrated no strict connection between histamine release and stimulation of histidine decarboxylase activity in the rat gastric mucosa.

### 7842 MECHANISM BY WHICH FAT IN THE UPPER SMALL INTESTINE INHIBITS GASTRIC ACID. *(E.)*

Debas, H. T. (U. Dept. Surg., Glasgow, Scotland), B. S. Bedi, G. Gillespie and I. E. Gillespie. *Gastroenterology* 56(3):483-487, 1969.

Three mongrel dogs (15-20 kg) with a vagally innervated pouch of the pyloric gland area and a Heidenhain-type denervated fundic pouch were at constant weight and in good health throughout the experiments. The i.v. injection of 10 U soluble insulin verified the intact innervation of the pyloric gland area pouch in each dog. The "maximal" histamine response was determined by doubling the dose of a continuous infusion of histamine acid phosphate until there was no further acid output increase. The endogenous release of gastrin was caused by irrigation of the pyloric gland area pouch with acetylcholine chloride solution: 0.1% solution was sufficient in 2 dogs while in the 3rd 0.5% solution was required. Exogenous gastrin stimulation was produced by the continuous i.v. infusion of pentagastrin (10-15 μg/hr) or 10 μg/hr pure gastrin II extract. A commercially available corn oil (Mazola), 59% polyunsaturated fatty acids, was fed to the dogs in 3 separate amounts of 20 ml every 5 min over a 15-min period. The oil was eaten with relish and totally consumed on each occasion. The statistical significance of the differences was calculated between the mean control plateau responses and each mean 15-min acid output after the oil. The results of 13 experiments on the 3 dogs showed that oil inhibited the response to acetycholine in the 2nd 15-min period after feeding and that this difference was statistically significant during the 3rd 15-min period. Maximal inhibition, (75-80% of controls) occurred after 45-90 min. Even after 3 hr the inhibition was still significant. The effect of fat on exogenous gastrin-like responses was very similar to that observed with endogenous gastrin release. Fat did not inhibit histamine stimulated responses in a statistically significant way. The humoral agent released by fat acts predominantly, or possibly solely, by inactivating circulating gastrin and not by preventing gastrin release from the pyloric gland area.

### 7843 EFFECT OF SECRETIN ON GASTRIC ACID SECRETION STIMULATED BY GASTRIN II. CAERULEIN AND DESULFATED CAERULEIN. *(E.)*

Brooks, A. M. (VA Res. Ctr., Los Angeles, Calif.), L. R. Johnson and M. I. Grossman. *Proc Soc Exp Biol Med* 131(3): 1019-1021, 1969.

Gastric acid secretion in 4 dogs with Heidenhain pouches (with gastric fistulas open to divert acid from the main stomach to the exterior) was stimulated with porcine gastrin II and with natural and desulfated caerulein, decapeptides whose C-terminal structure closely resembles that of gastrin and cholecystokinin. Pure natural secretion, 1 U/kg/hr, inhibited 64-80% of the acid output from the Heidenhain pouches induced by these stimulants.

### 7844 PH-DEPENDENCE OF THE MECHANISM IN THE DUODENAL BULB INHIBITING GASTRIC ACID RESPONSES TO EXOGENOUS GASTRIN. *(E.)*

Andersson, S. (Karolinska Inst., Stockholm, Sweden) and G. Nilsson. *Acta Physiol Scand* 76(1/2):182-190, 1969.

Gastric secretion was stimulated by i.v. infusion of gastrin in Pavlov (5) and Heidenhain (2) pouch dogs provided with isolated pouches of the duodenal bulb. Lowering the intrabulbar pH to pH 1.1-1.3 almost abolished the acid response to a low dose of gastrin, whereas the inhibition of secretory responses to higher doses was less pronounced. Inhibition of secretory responses to a fixed submaximal dose of gastrin did not occur until the bulbar pH was reduced to 2.0-2.5. Secretory responses to threshold doses of gastrin, on the other hand, were significantly inhibited already at pH 3-4. The results question the concept that very low intraduodenal pH is required to activate the mechanism by which acid in the duodenum inhibits gastric acid secretion.

### 7845 EFFECT OF SECRETIN AND CHOLECYSTOKININ ON HISTIDINE DECARBOXYLASE ACTIVITY IN THE RAT STOMACH. *(E.)*

Caren, J. F. (VA Hosp., Sepulveda, Calif.), D. Aures and L. R. Johnson. *Proc Soc Exp Biol Med* 131(4):1194-1197, 1969.

Sprague-Dawley rats (160-220 g) injected i.p. with 250 μg/kg of pentagastrin showed an 8-fold increase in histidine (Hd) decarboxylase activity. Secretin (150 U/kg) with pentagastrin did not significantly lessen the stimulatory effect of pentagastrin, and secretin alone had no effect. Neither cholecystokinin-pancreozymin (CCK-PZ) (150 U/kg) nor SC-15396 [2-phenyl-2-(2-pyridyl)thioacetamide] (250 mg/kg) effectively antagonized the stimulating effect of pentagastrin on Hd decarboxylase. But both CCK-PZ and SC-15396 significantly (5 to 4-fold) stimulated Hd decarboxylase activity when compared to the solvent and saline-injected controls. Apparently pentagastrin acts directly to stimulate acid secretion and to activate Hd decarboxylase. Possibly secretin and CCK-PZ inhibit the receptors activated by gastrin to stimulate acid secretion, but do not affect the receptors for gastrin related to the activation of Hd decarboxylase.

### 7846 EFFECTS OF DOXAPRAM HC1 ON GASTRIC SECRETION IN DOGS. *(E.)*

Alphin, R. S. (A. H. Robins Res. Lab., Richmond, Va.), B. V. Franko and J. W. Ward. *Arch Int Pharmacodyn* 180(1):180-190, 1969.

The effect of doxapram HCl on basal, histamine-insulin-and gastrin-stimulated gastric secretion was studied in 4 vagally denervated and 3 vagally innervated pouch dogs. Doxapram (10 mg/kg) significantly inhibited gastric secretion in all dogs; at 5 mg/kg inhibition occurred in 4 of 5 dogs. The histamine response was augmented in 2 of 3 dogs following administration p.o. of 5 or 10 mg/kg of doxapram. The gastric secretory response to insulin (15 U s.c.) was augmented in 2 innervated dogs. Gastrin-stimulated gastric secretion was augmented both in volume and acidity by doxapram. Basal secretion tests showed an increase in gastric acidity due to doxapram. The tone of the pyloric sphincter was increased and gastric emptying was delayed by 10 mg/kg of doxapram. Possible mechanisms suggested are: 1) release of histamine caused by doxapram, resulting in increased gastric secretion; 2) enhanced vagal activity resulting from a more general CNS stimulating effect by the compound, and 3) an effect on the gastrin release mechanism resulting from, and coupled with, increased vagal activity.

### 7847 GASTRIC ELECTROLYTE SECRETION DURING NONSTEADY-STATE SECRETION IN GASTRIC FISTULA RATS. *(E.)*

Lee, Y. H. (UCLA Sch. Med., Los Angeles, Calif.) and J. H. Thompson. *Amer J Physiol* 216(6):1481-1485, 1969.

The relationships between gastric secretory volume and gastric electrolytes and their interrelations were studied in 30 chronic gastric fistula Sprague-Dawley rats (200-250 g) following varying s.c. doses of hog gastrin, pentagastrin, histamine, and insulin hypoglycemia. There were no significant differences in the electrolyte concentration after any of the gastric stimulants. Significant linear correlations were obtained between ($H^+$), and ($Na^+$), ($K^+$), total (Cl), and neutral (Cl). In each case $P < 0.001$. The relationship between gastric secretory volume rate and the concentration of electrolytes was not hyperbolic. Values for the nonparietal components of each ion were obtained using the equation of Makhlouf (*Gastroenterology* 51: 149, 1966) and differed from those obtained in man and the dog.

### 7848 THE PEPSINS OF NORMAL HUMAN GASTRIC JUICE. *(E.)*

Etherington, D. J. (United Liverpool Hosp., Liverpool, England) and W. H. Taylor. *Biochem J* 113(4):663-668, 1969.

The frequency of occurrence, under certain conditions, of the different human pepsins in the gastric juices of 50 normal subjects was investigated by agar-gel electrophoresis. From a total of 8 proteolytic zones located in the zymograms, no significant differences of occurrence existed between the sexes, or between subjects with or without gastric symptoms. Two zones, numbered 3 and 5, occurred in all normal gastric juices. Zone 3 always exhibited the greatest proteolytic activity, then zone 5. The remaining enzymic zones were less well-marked and occurred less frequently. A minor zone, 3α, was demonstrated within zone 3. The corresponding pepsin, 3α, has a mobility towards the anode 6-7% greater than has pepsin 3. Of the 8 zones, 1, 2, 3, 3α and 5, at least, represent unique pepsins.

### 7849 THE RELATIONSHIP BETWEEN THE GASTRIC AND PANCREATIC SECRETION IN MAN.

*(E.)* Petersen, H. (Ullevål Hosp., Oslo, Norway). *Scand J Gastroent* 4(4):345-351, 1969.

The material comprised 64 patients (30 women and 34 men). In 11 the clinical diagnosis of chronic pancreatitis was made. In 8 duodenal ulcers were found by X-ray 1 week to 4 months previously but there was no evidence of pancreatic disease. In 45 neither pancreatic disease nor duodenal ulcer was found. In 21 of the 45, pancreatic disease was "possible." These cases presented evidence of gallbladder disease, malabsorption, alcoholism, and inconclusive X-ray or cytological findings. A significant positive correlation was found between the acid output in response to a maximal dose of histamine and the bicarbonate output in response to a submaximal dose of secretin, and between the corresponding volumes of aspirated gastric and duodenal juice. A poor correlation was found between the mean concentrations of acid and bicarbonate. Patients with chronic pancreatitis and duodenal ulcer secreted significantly more acid in response to histamine than bicarbonate to secretin. All other patients secreted on an average slightly more bicarbonate than acid.

### 7850 EFFECT OF GLYCOPYRRONIUM BROMIDE ON BASAL, AND HISTAMINE- OR GASTRIN-INDUCED GASTRIC SECRETION.

*(E.)* Amure, B. O. (Dept. Physiol., U. Ibadan, Nigeria). *J Pharm Pharmacol* 21(8):502-505, 1969.

Acid secretory responses were obtained in rats given either i.v. histamine as dihydrochloride or gastrin subjected to partial purification. A continuous recording method for measuring gastric acid secretion was used. When the rat stomach was perfused with weak sodium hydroxide solution, glycopyrronium bromide (a powerful anticholinergic drug) blocked the acid gastric secretory effects of both histamine and gastrin. Glycopyrronium bromide in doses of 2 μg/100 g body weight was well tolerated in the rat. Doses higher than 2 mg/100 g caused respiratory disturbances. The action of glycopyrronium bromide in blocking the gastric secretory effects of gastrin supports the hypothesis that gastrin acts partly by stimulating the vagus nerve.

### 7851 EFFECT OF CHANGE IN THE HYDROGEN ION CONTENT OF GASTRIC JUICE ON GASTRIC MUCUS SECRETION.

*(E.)* Wise, L. (Washington U. Sch. Med., St. Louis, Mo.) and W. F. Ballinger II. *Surgery* 66(4):723-733, 1969.

Innervated total gastric pouches were constructed in 10 dogs (20-25 kg) to study the effect of increased gastric hydrogen ion secretion on the quantity or quality of mucus secretion. Histamine was used to produce a rise in endogenous hydrogen ion secretion. It appears in the dog that histamine causes a fall in the concentration of all the constituents of gastric mucus, including pepsin. Essentially, the reason for this fall is the tremendous rise in secretory volume (671%). At the same time, associated with the rise in acidity, there was a significant rise in the output of all the constituents of mucus. The rise was accompanied by an increase in carbohydrate/protein ratio in the dissolved mucus from 0.049-0.083, the nondigestible component of acid mucopolysaccharide increased from 25-46%, and the tyrosine content within the protein moiety increased from 2.78-3.81%. These results indicate a multiple defense reaction by the dissolved gastric mucus to increased gastric acidity. Failure of this defense mechanism may be involved in the development of some cases of peptic ulceration.

### 7852 ACID SECRETION FOLLOWING PORTACAVAL SHUNTING. ROLE OF VAGUS, GASTRIN, INTESTINAL PHASE, AND HISTAMINE.

*(E.)* Newman, P. H. (Harbor Gen. Hosp., Torrance, Calif.), D. D. Reeder, W. D. Davidson, E. Schneider, J. H. Miller and J. C. Thompson. *Arch Surg (Chicago)* 99(3):369-375, 1969.

Heidenhain pouch studies were made on 6 dogs with innervated gastric fistula and 5 dogs with antrectomy. As anticipated, 2-deoxy-D-glucose (2DG), a vagal stimulant, had essentially no effect on Heidenhain pouch acid secretion either before or after portacaval transposition or after administration of brocresine. Gastric fistula response to 2DG was not affected by either shunting or treatment with brocresine. The acid response, after portacaval transposition, to histamine stimulation was reduced only 20%; determined from gastric fistula, a 48% reduction was observed and brocresine did not alter this response. The gastric response to pentagastrin was partially augmented by portacaval transposition. The total acid output from the Heidenhain pouch of antretomized dogs in a 6 hr study was increased 22,800% after portacaval transposition. In further studies, using 21 dogs, portacaval transposition did not significantly increase the concentration of histamine in the gastric mucosa, and there appeared to be no significant histidine decarboxylase activity in the gastric mucosa either before or after portacaval transposition. Brocresine did not affect gastric mucosal histamine content after portacaval transposition. Augmentation of the intestinal phase of gastric secretion seems to be the major basis for the hypersecretion seen in dogs with portacaval transposition shunts. Gastrin itself may contribute to the post-shunt hypersecretion.

### 7853 THE EFFECT OF BLOOD SUGAR LEVEL ON THE HISTAMINE-STIMULATED GASTRIC SECRETION IN SHAY-RATS.

*(E.)* Voukydis, P. C. (Dept. Physiol., Boston U., Mass.). *Arch Int Pharmacodyn* 179(2):364-371, 1969.

The effect of glucose injections and blood sugar level on histamine stimulated gastric secretion was studied in Shay-operated, male Sprague-Dawley rats. Preliminary studies showed that ether anesthesia induced hyperglycemia while barbiturate anesthesia (which was subsequently used) induced a mild reduction in blood sugar. The Shay operation itself had no significant effect on the blood sugar level while i.p. injection of glucose did produce hyperglycemia in both the sham-operated and Shay-rats. Histamine (150 μg s.c.) increased the acidity of the gastric secretion and this effect was inhibited by glucose. Glucose also reduced the acidity of unstimulated gastric secretion, but this was insignificant. Additional blood glucose levels and gastric juice acidity were determined in 42 Shay-operated rats following a s.c. injection of 100 μg of histamine. By plotting the results and by applying the method of least squares, it was demonstrated from the coefficient of correlation that there is an inverse logarithmic relationship between histamine-stimulated gastric secretion and blood sugar level.

### 7854 INFLUENCE OF HYPERALDOSTERONISM UPON GASTRIC SECRETION.

*(E.)* Baddeley, R. M. (Queen Elizabeth Hosp., Edgbaston, England), J. Evans and J. A. Griffin. *GUT* 10(2):143-145, 1969.

Acute intravenous infusions of aldosterone (0.02, 0.5 and 1.1 mg/hr) and of chronic daily injections of aldosterone (2.5 mg) oil administered to a group of 8 Heidenhain pouch female dogs had no effect upon gastric acid and pepsin secretion. In the acute studies, gastric sodium secretion was decreased significantly but, in the chronic studies, aldosterone induced statistically significant increases in the sodium/potassium ratios. It is concluded that aldosterone probably does not influence acid and pepsin secretion in human or experimental hepatic cirrhosis either by a direct effect on the gastric mucosa or by depletion of body potassium.

7855 **CALCIUM AND GASTRIC SECRETION. I.** *(E.)* Kocián, J. (Inst. Human Nutrit. Prague, Czechoslovakia) and D. Hlavackova. *Rev Czech Med* 15(1): 45-54, 1969.

The authors examined the acidity in 24 patients (4 with histamine resistant achlorhydria, 13 patients with different diseases and 7 suffering from peptic ulcers) after i.v. administration of 10% calcium gluconate 10.3 mg/kg body weight as compared with usual administration of histamine, 0.01 mg/kg body weight. After administration of the calcium salt no secretion of free hydrochloric acid was found in patients with achlorhydria (only a decrease of the deficit). In the group of patients without ulcers there was a marked increase of the secretion of free and total HCL as compared with values on fasting, i.e., by 37% as compared with the level after histamine. On the group of patients with ulcers similar results were obtained, only the increase of secretion after calcium amounted to 42% of the histamine secretion. The authors discuss the possible unwanted stimulation of gastric secretion after the administration of $CaCO_3$ as an antacid preparation and conversely the favourable effect of this stimulation when calcium is added in different conditions associated with diarrhea.

7856 **CALCIUM AND GASTRIC SECRETION. II.** *(E.)* Kocián, J. (Inst. Human Nutrit. Prague, Czechoslovakia) and D. Hlaváčková. *Rev Czech Med* 15(1): 55-61, 1969.

The authors investigated the influence of fasting serum calcium level on the basal secretion of HCL in 79 patients divided into groups with a low (9 mg/100 ml) medium (9-9.9 mg/100 ml) and high (10 mg/100 ml) calcium serum level, as well as the influence of the calcium level on HCL secretion after stimulation with histamine. The assumption was expressed that a certain calcium serum level is essential for the proper function of parietal cells of the gastric mucosa. When the calcium levels are low (less than 8 mg/100 ml) the response of parietal cells to histamine is slight and secretion stops quietly; this phenomenon is reversible.

7857 **THE EFFECT OF HYPERCALCEMIA ON THE SIMULTANEOUSLY INDUCED SECRETION IN THE VAGAL INNERVATED MAIN STOMACH AND THE VAGAL DENERVATED HEINDENHAIN POUCH.** *(Ger.)* Lick, R. F. (Surg. Polyclin., U. Munich, Germany), R. Endriss W. Hart and D. Balser. *Med Klin* 62(33):1262-1268, 1967.

A vagal denervated Heidenhain pouch was created in 2 mongrel dogs (18-19.5 kg) so that the antrum of the stomach was fistulized under protection of the vagal-antral innervation. After analysis of the basal secretion and following stimulation of the stomach secretion, the 15 min secretion was gathered from the Heidenhain pouch and the main stomach. The parameter of the stomach secretion was determined by usual methods. An electric injection pump was used in order to control the amount of calcium infused (50-70 ml of a 10% calcium solution/hr). After completion of the infusion, values of 16 and 19 mg% were achieved after an hr. Hypercalcemia remained in most cases more than 2 hr; then the blood calcium normalized itself. Two experiments were performed on the dogs with and without hypercalcemia. From the experiments using calcium on the animals typical peptic ulcers were not produced. Tests on the fistulized stomach of dogs with a vagal denervated Heidenhain pouch demonstrated that a continually directed hypercalcemia led to a depression of the basal secretin or the stimulated secretion. The hypercalcemia blocked secretions of a number of stimulants: hunger, histamines, prostigmin, insulin, 2-Desoxy-D-glucose, gastrin and synthetic oligopeptide. Only histamine secretion remained uninfluenced. The experiments show that the formation of a peptic ulcer with hypercalcemia is improbable. It was also concluded that oligopeptide had certain possible good uses in different gastric stomach diseases; the possibility of its various uses must still be investigated.

7858 **CHANGES IN THE QUANTITY OF PROTEINS OF GASTRIC JUICE DEPENDING ON STIMULATION.** *(Rus.)* Zagorodneva, A. G. (A. A. Bogomoletz Inst. Physiol., Kiev, USSR). *Biull Eksp Biol Med* 65(2):14-16, 1968.

7859 **DIFFERENCES IN LACTIC DEHYDROGENASE ISOENZYME PATTERNS FROM THE MUCOSA AND MUSCULAR LAYER OF THE FUNDUS AND PYLORIC PART OF THE RAT STOMACH.** *(Cz.)* Prochazka, B. (Gen. Med. Fac., Charles U., Prague, Czechoslovakia), V. Jirasek, V. Barta, J. Kohout and L. Korbova. *Cas Lek Cesk* 106(50): 1370-1372, 1967.

7860 **COMPARATIVE STUDY OF STOMACH SECRETION DURING MAXIMUM STIMULATION WITH PENTAGASTRIN AND HISTAMINE.** *(Sp.)* Tomatis, H. P. (San Roque Hosp., Córdoba, Argentina) and O. F. Longo. *Prensa Med Argent* 56(6):254-256, 1969.

7861 **LATENT PERIOD OF GASTRIC SECRETION.** *(Rus.)* Aleshin, I. A. (Aktiubinsk Med. Inst., USSR). *Vrach Delo* 50(5):30-33, 1969.

See also: 8135,8143,8158,8325,8326,8332,8396,8915

7862 **DETERMINATION OF PANCREATIC HORMONES. CLINICAL AND EXPERIMENTAL APPLICATIONS.** *(Fr.)* van Cauwenberge, H. (Inst. Clin. Pathol. Med., U. Liège, Belgium), P. Lefebvre and A. Luyckx. *Bull Acad Roy Med Belg* 8(11):899-937, 1968.

The level of insulin in human peripheral blood vessels was determined after p.o. administration of 100 g of glucose to 72 patients, divided into 4 groups: normal subjects, diabetics, subjects with normal body weight, and obese. The diabetic subjects showed a high insulinemia in all the experiments and it was more marked in obese subjects. *In vivo* experiments on 21 anesthetized dogs, using a new method for the determination of insulin, showed that the basal production of insulin in a dog of 20 kg is 6-7 U/day, and that the production of plasma glucagon is 250 ± 80 μμEq/min/kg of body weight. The stimulant effect of glucagon on insulin production was increased by theophylline (inhibitor of phosphodiesterase). Data on 1 experiment are given: the production of insulin from 2,372 μU/min increased to 4,874 μU/min after injection of 0.5 glucagon and increased to 6,750 ± 227 μU/min after perfusion of theophylline (1 mg/kg/min). These experiments confirm the hypothesis that 3'5' AMP affects the insulinogenic effect of glucagon *in vivo.*

7863 **THE MUTUAL INFLUENCE OF GASTRIN AND SECRETIN ON THE EXTERNAL PANCREATIC SECRETION IN DOGS.** *(E.)* Henriksen, F. W. (Munic. Hosp., Copenhagen, Denmark) and H. Worning. *Acta Physiol Scand* 76(1/2):67-72, 1969.

The external pancreatic secretion of fluid, bicarbonate and protein in 4 dogs with Thomas type fistulae, was studied in response to secretin (1 U/kg), gastrin (2 U/kg) and combined secretin-gastrin stimulation. Gastrin exerted a stimulating effect on the pancreatic secretion of fluid, bicarbonate and protein and increased the bicarbonate concentration in the juice significantly above basal level. The combined effect of secretin and gastrin on the secretion of fluid, bicarbonate and protein did not differ from the summarized effect of the 2 agents given separately. Potentation between secretin and gastrin was not demonstrated.

7864 **CORRELATION ANALYSIS OF DUODENAL ASPIRATES AFTER SECRETIN ADMINISTRATION.** *(E.)* Demand, H. A. (Dept. Med., U. Erlangen, Germany) and P. Kuckuck. *Scand J Gastroent* 4(4):329-334, 1969.

In 12 experiments with 12 subjects, duodenal aspirates were analysed for flow rate, amylase, and 6 electrolytes, before and after secretin administration. Correlation analysis differentiated 2 groups of constituents: the one comprising $Na^+$ and $HCO_3^-$, the other $K^+$, $Ca^{++}$, $Na^+$, $Cl^-$, $HPO_4^=$ and amylase.

7865 **COMPARISON OF PANCREATIC RESPONSES TO NATURAL AND SYNTHETIC SECRETINS IN CONSCIOUS CATS.** *(E.)* Konturek, S. J. (Med. Sch., Krakow, Poland). *Amer J Dig Dis* 14(8):557-565, 1969.

The relative effectiveness of 2 natural secretins, GIH (from the Karolinsha Inst.) secretin and Boots secretin, and synthetic secretin (Squibb) in the stimulation of pancreatic volume flow and bicarbonate output was studied in 4 conscious cats (2.5-3 kg) with cannulated pancreatic ducts. The shapes of the pancreatic dose-response curves for GIH secretin and synthetic secretin, given i.v. in progressively increasing doses or in single-dose injections, were similar. Comparison of the natural secretins indicated that Boots secretin was about 10 times less potent than GIH secretin on a unit for unit basis. The cannulation of the feline major pancreatic duct through a duodenal fistula, with the bile diverted from the common flow, with pancreatic juice to the exterior, seems to be a stable, reproducible, and easily available method for the study of pancreatic secretion in physiologic conditions.

7866 **PRESENCE, INDUCTION AND POSSIBLE ROLE OF GLUCOSE 6-PHOSPHATASE IN MAMMALIAN PANCREATIC ISLETS.** *(E.)* Tãljedal, I. B. (Dept. Histol., U. Umeå, Sweden). *Biochem J* 114(2):387-394, 1969.

Pancreatic islets from several mammalian species (mice, rats, guinea pigs and hamsters) were investigated for hydrolytic activity towards glucose 6-phosphate. Both the total phosphatase activity towards this substrate and the proportion cleaving glucose 6-phosphate in preference to β-glycerophosphate varied widely between species. In pancreatic-islet homogenates prepared from mice and guinea pigs there was a higher rate of liberation of $P_1$ at pH 6-7 from glucose 6-phosphate than from β-glycerophosphate. In these 2 species cortisone treatment enhanced the enzyme activity towards glucose 6-phosphate but not that towards β-glycerophosphate. Simultaneous injections of ethionine or puromycin blocked this stimulating effect of cortisone. With whole homogenates of mouse pancreatic islets, inverse plots of the relationship between glucose 6-phosphate concentration and enzyme activity suggested the simultaneous action of 2 enzymes with different $K_m$ values. After fractionation of islets from obese-hyperglycemic mice by differential centrifugation, 1 of these enzymes could be shown to be localized in the microsome fraction. It had $K_m$ for glucose 6-phosphate about 0.5 mM and optimum pH 6-7. It split glucose 6-phosphate in preference to β-glycerophosphate, glucose 1-phosphate, fructose 6-phosphate and fructose 1,6-diphosphate. Incubation of the microsomes at pH 5-0 and 37C for 15 min decreased the enzyme activity by about 80%. Glucose was a potent inhibitor, the type of inhibition being neither strictly competitive nor noncompetitive. The results indicate the presence of glucose 6-phosphatase in mammalian endocrine pancreas, and that this enzyme may play a role in the metabolic regulation of release of insulin.

7867 **THE EFFECT OF VARIOUS KINDS OF CARBOHYDRATES ON AMYLASE FORMATION IN THE PANCREAS.** *(E.)* Bučko, A. (Human Nutrit. Res. Inst., Bratislava, Czechoslovakia), V. Šimko and Z. Kopec. *Nutr Dieta (Basel)* 11(3):203-213, 1969.

White male Dobra Voda rats were used to determine the effect of various carbohydrates (glucose, fructose, galactose, saccharose, and starch in isocaloric amounts) on amylase formation in the pancreas. Amylase activity was about 3 times higher after glucose administration than after fructose and saccharose administration, and ½ higher than after starch administration. In parallel studies, the influence of carbohydrates on blood cholesterol and esterified fatty acid levels was determined. These levels were elevated after fructose and saccharose administration. These elevated levels were further investigated to determine if there was any effect on pancreas lipase activity. In both cases, there was a rise in lipase activity after saccharose and fructose administration, the rise being statistically significant after saccharose. In the course of enzyme formation the adaptation of the rat pancreas to a change in the supply of substrates is due predominantly to humoral influence by means of the products of food splitting (glucose, amino acids, etc.), which are transported into the acinar cells of the pancreas via the blood.

7868 HISTOCHEMICAL STUDIES ON THE METABOLISM OF L-DOPA AND SOME RELATED SUBSTANCES IN THE EXOCRINE PANCREAS. *(E.)* Alm, P. (Inst. Anat. Histol., U. Lund, Sweden), B. Ehinger and B. Falck. *Acta Physiol Scand* 76(1/2):106-120, 1969.

The turnover of L-DOPA (L-3,4-dihydroxyphenylalanine) and some related substances in the pancreas of albino mice and albino rats was studied, using the fluorescence method of Falck and Hillarp. The differences in effect of drugs between mice and rats were as a rule small. All the amino acids injected were easily taken up by the pancreas. This was not true with the corresponding amines. Only after L-DOPA and DA (dopamine) administration, could fluorescent granules be seen in the apical zones of the exocrine cells. These granules were found to be identical with the zymogen granules. After the injection of D-DOPA, a diffuse fluorescence appeared all over the pancreatic acinar cells, in the same way as with L-DOPA but "granular" fluorescence never did appear. The diffuse fluorescence was longer lasting. The injection of L-α-methyl-DOPA, DL-α-methyl-m-tyrosine and DL-m-tyrosine resulted in essentially the same diffuse fluorescence as with D-DOPA. Inhibition of the monoamine oxidase (MAO) with nialamide or of the catechol-O-methyl transferase (COMT) with β-thujaplicin prolonged the persistence of the fluorescent granules. Decarboxylase inhibition delayed or prevented the appearance of granular fluorescence. These effects indicate that the fluorescent product stored in the zymogen granules is DA rather than DOPA.

7869 SECRETORY AND IMMUNOCHEMICAL PROPERTIES OF GASTRIN AND PANCREOZYMIN-CHOLECYSTOKININ. *(E.)* Charters, A. C. (Harbor Gen. Hosp., Torrance, Calif.), W. D. Davidson, W. D. Odell and J. C. Thompson. *Gastroenterology* 57(2):156-158, 1969.

Hog gastrin was found to be 30 times more potent on a molar basis than pancreozymin-cholecystokinin (PZ-CCK) in stimulating gastric acid secretion from the isolated bullfrog gastric mucosa. Hog PZ-CCK showed slight cross-reaction in a hog gastrin II radioimmunoassay. The 2 hormones, gastrin and PZ-CCK, appear to have common biochemical, immunological, and biological properties. Because of the differences in the methods of purification of these materials, the possibility of contamination of PZ-CCK with gastrin is remote. Comparing the cross reaction in the immunoassay and bioassay demonstrated that the secretion elicited by PZ-CCK could not be accounted for by contamination. Apparently the stimulation of acid secretion is a biological property held in common by PZ-CCK and gastrin, and is an intrinsic physiological action of PZ-CCK.

7870 THE EFFECT OF DRIED THYROID PREPARATION AND 6-METHYLTHIOURACIL ON PANCREATIC ENZYME SECRETION. *(Rus.)* Kiienia, A. I. (Vet. Inst., Vitebsk, USSR). *Fiziol Zh SSSR Sechenov* 55(2): 221-226, 1969.

7871 PANCREATIC, HEPATIC, AND RENAL EXCRETION OF ANTIBIOTICS IN DOGS. OBSERVATIONS ON ERYTHROMYCIN, LINCOMYCIN, KANAMYCIN, AND COLISTIMETHATE EXCRETION. *(E.)* Wyman, J. B. (Mayo Grad. Sch. Med., U. Minnesota, Rochester), L. G. Bartholomew, A. G. Karlson, K. G. Wakim and J. C. Cain. *Arch Surg* 97(1):46-50, 1968.

7872 CONTROL MECHANISMS OF THE EXOCRINE FUNCTION OF THE PANCREAS. *(Fr.)* Dunnigan, J. (Fac. Sci., U. Sherbrooke, Canada). *Laval Med* 38(7):686-691, 1967.

7873 INVESTIGATION METHODS AND CERTAIN TRENDS OF THE EXOCRINE PANCREATIC FUNCTION. *(Rus.)* Perepelkin, S. R. (1st Moscow Med. Inst., USSR) and A. K. Ezhov. *Biull Eksp Biol Med* 68(8): 124-126, 1969.

7874 KINETIC PROPERTIES OF THE α-LYTIC PROTEASE OF SORANGIUM SP., A BACTERIAL HOMOLOGUE OF THE PANCREATOPEPTIDASES. *(E.)* Kaplan, H. (Natl. Res. Counc. Canada, Ottawa) and D. R. Whitaker. *Canad J Biochem* 47(3):305-316, 1969.

7875 INCORPORATION OF $P_{32}$ INTO PHOSPHOLIPIDS OF PANCREAS. III. EFFECTS OF ACUTE AND CHRONIC ADMINISTRATION OF GLUCOSE ON THE INCORPORATION OF $P_{32}$ BY PHOSPHOLIPIDS OF PANCREAS AND OF ETHANOL ON THE HEPATIC PHOSPHOLIPIDS. *(Sp.)* Orrego, H. (Hosp. J. J. Aguirre, Santiago, Chile), A. Feres, E. Navia and L. Costamaillere. *Rev Med Chile* 96(9):578-581, 1968.

7876 STUDIES ON THE ISOLATED PERFUSED CANINE PANCREAS. *(E.)* Hermon-Taylor, J. (The London Hosp., England). *J Roy Coll Surg Edinb* 12(5): 317, 1968.

See also: 7725,7849,8843

### 7877 INFLUENCE OF ALCOHOL FEEDING AND A CHOLINE DEFICIENCY ON SOME ENZYMES OF AMMONIA DETOXIFICATION IN THE RAT LIVER.

*(E.)* Barak, A. J. (VA Hosp., Omaha, Nebr.), K. J. Hahn, D. J. Tuma and H. C. Beckenhauer. *Digestion* 2(4):209-214, 1969.

Sprague-Dawley rats were used to study the influence of alcohol feeding and a choline deficient diet on some enzymes (arginase, ornithine transcarbamylase, and glutamic dehydrogenase) of hepatic ammonia detoxification. Fatty infiltration of the liver was produced by a choline deficient diet and was accompanied by a high degree of damage to the ammonia detoxification enzymes. Assays for arginase and ornithine transcarbamylase showed a marked loss of both enzymes in livers from rats on a choline deficient diet. No change was observed in livers from animals on a high alcohol intake with an adequate diet. Neither the alcohol intake nor the choline deficient diet changed the levels of the other enzyme studied which is involved in ammonia metabolism, glutamic dehydrogenase.

### 7878 ABRASIVE ABLATION: A NEW EXPERIMENTAL SURGICAL TECHNIQUE TO STUDY NONPARENCHYMAL ASPECTS OF HEPATIC REGENERATION.

*(E.)* Bruckner, W. L. (UCLA Sch. Med., Los Angeles, Calif.), M. Barenfus, H. D. Snow and W. P. Longmire Jr. *J Surg Res* 9(8):461-469, 1969.

Abrasive ablation, an experimental technique to induce localized hepatic regeneration was applied to short-haired guinea pigs, New Zealand rabbits, mongrel dogs and rhesus monkeys. The regenerative events in guinea pigs were: parenchymal inflammation; i.e., early degeneration and necrosis of hepatocytes; formation of a febrinopurulent "pseudo-capsule" in 6 days; macrophage and giant cell phagocytosis; parenchymal regenerative hyperplasia; conversion of "pseudocapsule" to an organized and vascularized "neocapsule" containing proliferated ductular and reticuloendothelial cells in 14 days; reticuloendothelial, ductal, and ductular hyperplasia within 18 days; resolution and regeneration by 21 days. Certain variables (e.g., species strain, age, sex, external and internal environment) modified results. A range of hepatic responses to a variety of injurious stimuli were found.

### 7879 LIVER GROWTH ASSOCIATED WITH THE INDUCTION OF DEMETHYLASE ACTIVITY AFTER INJECTION OF 3-METHYLCHOLANTHRENE IN IMMATURE RATS.

*(E.)* Argyris, T. S. (Syracuse U., N. Y.) and D. L. Layman. *Cancer Res* 29(3):549-553, 1969.

One i.p. injection of 1 mg of 3-Methylcholanthrene into immature male and female rats resulted in an increase in azo dye demethylase activity. This was followed by an increase in wet and dry liver weight and in total protein, which reached a peak of about 30-40% above control levels within 3 or 4 days. Cell proliferation contributed to the increase in liver weight and protein as indicated by an increase in total DNA and nuclear count. Increased hepatocyte mitotic activity was noted. Between 5 and 7 days after injection of 3-Methylcholanthrene, the liver weight, protein, DNA, nuclear count and azo dye demethylase activity began to decrease to control levels, which they reached in 14 days.

### 7880 THE CHROMO-EXCRETORY FUNCTION OF THE REGENERATING LIVER OF THE NORMAL RAT AND THE RAT TREATED WITH $CCl_4$ AND WITH ETHANOL.

*(It.)* Carulli, N. (Dept. Clin. Med., U. Modena, Italy), M. Gallo and F. Manenti. *Clin (Bologna)* 28(5):420-427, 1969.

Male Sprague-Dawley rats were treated with $CCl_4$ for 8 weeks, and female Sprague-Dawley rats with ethanol for 12 weeks. Regeneration was induced by hepatectomy. The results showed that treatment with $CCl_4$ decreased the excretion of BSP by 1.5-5 mg/100 g body weight (basal values in normal rats 51.3 μg/min/g liver; with $CCl_4$ 41.2). Hepatectomy induced a significant decrease in clearance when this was determined within 48 hr after the operation both in normal and in treated rats (values after 24 hr in normal rats is 39.7 μg/min/g liver, and with $CCl_4$ 41.2). The results in the rats treated with ethanol confirmed a decrease in the clearance of BSP after hepatectomy. The average basal values and the values 24 hr after hepatectomy were: in normal rats 37.9 μg/min/g liver and 22.1, resp; in treated rats 40.3 μg/min/g liver and 20.3, resp. Study of the composition of hepatic tissue in rats treated with ethanol, before and after hepatectomy, showed that, while the content of water remained the same, lipids increased, mainly in the early phases after hepatectomy.

### 7881 THE DEVELOPMENT OF GLUCONEOGENESIS IN RAT LIVER EXPERIMENTS *IN VIVO.*

*(E.)* Philippidis, H. (Temple U. Sch. Med., Philadelphia, Pa.) and F. J. Ballard. *Biochem J* 113(4):651-657, 1969.

The injection of substrate amounts of DL-3-$^{14}C$ lactate into newborn Wistar Albino rats produced an increase in the concentration of phosphoenolpyruvate in liver. Similar experiments with fetal rats showed no increase in phosphoenolpyruvate concentration although pyruvate formation was observed. The administration of 3-$^{14}C$ pyruvate to fetal rats was also without effect on the hepatic phosphoenolpyruvate concentration, although a 20-fold increase in this was observed when DL-3-$^{14}C$ pyruvate was injected into newborn animals. Analogous experiments with labeled aspartate produced qualitatively similar differences between fetal and newborn rats. When $^{14}C$-lactate,-pyruvate or -aspartate was injected into fetal or newborn rats, incorporation of radioactivity into liver glucose was observed only in the newborn animals. Lactate/pyruvate ratios of 213 in fetal liver and 13.5 in the livers of newborn rats indicated a relatively reduced environment in the cytosol of fetal liver. This difference in redox state was illustrated experimentally by a greater conversion of pyruvate into lactate and an increased formation of malate in fetal liver. Although both the substrate-loading and tracer experiments indicated a block in gluconeogenesis in fetal liver at the stage of conversion of oxaloacetate into phosphoenolpyruvate, gluconeogenesis was also hindered by a highly reduced environment.

7882 ENZYMES INVOLVED IN FRUCTOSE METABOLISM IN LIVER AND THE GLYCERALDEHYDE METABOLIC CROSSROAD. *(E.)* Sillero, M. A. G. (Inst. Enzymology, Madrid, Spain), A. Sillero and A. Sols. *Europ J Biochem* 10(2):345-350, 1969.

Spectrophotometric studies were made of the activity in rat liver in different nutritional conditions of the enzymes potentially involved in fructose metabolism. Fructokinase, the B isoenzyme of fructosediphosphate aldolase and triokinase, the 3 enzymes of Hers' pathway for fructose metabolism, are constitutive in adult female, white rats (130-145 g). No important variation in enzyme levels occurred after a 60% fructose diet. A quantitative model of the metabolic crossroads of D-glyceraldehyde was also developed. This model permits a prediction of the relative contributions of the phosphorylative, oxidative and reductive pathways in different conditions. The main pathway for D-glyceraldehyde metabolism in liver is phosphorylation by triokinase.

7883 LIVER REACTION AS MANIFESTED IN INCREASED ACTIVITY OF ORNITHINE CARBAMOYL TRANSFERASE IN SERUM (S-OCT) AFTER OPERATION IN THE DOG. *(E.)* Brohult, J. (Karolinska Sjukhuset, Stockholm, Sweden), J. Gillguist, H. Reichard and L. Thulin. *Acta Chir Scand* 135(5):429-432, 1969.

Serum ornithine carbamoyl transferase (S-OCT) was not significantly elevated in the mongrel dog after barbiturate and nitrous oxide anesthesia alone. Moderate increases in S-OCT, with a maximum 3-6 days after the operation, were however elicited by resection of part of the iliac crest as well as by splenectomy according to 2 different methods. Very pronounced increases in S-OCT were observed after the quadriceps muscle was resected and replaced in the wound. The latter increases started earlier than those in the other experiments. Arguments are given in support of the theory that the late rise in S-OCT in the animals subjected to resection of the iliac crest or to splenectomy may have been due to an increased synthesis of OCT in the liver.

7884 CHANGE OF BILE COMPOSITION IN MAN AFTER ADMINISTRATION OF CHOLESTYRAMINE (A GALLSTONE DISSOLVING AGENT IN HAMSTERS). *(E.)* van der Linden, W. (Centrallasarettet, Östersund, Sweden) and F. Nakayama. *Acta Chir Scand* 135(5):433-438, 1969.

A consistent pattern of changes in the chemical composition of human hepatic bile was established in 8 postoperative cholecystectomy patients treated with cholestyramine, a resin which earlier studies had shown capable of inducing dissolution of cholesterol gallstones in hamsters. Bile was obtained from a T-tube in the common bile duct. Treatment with cholestyramine (4 gm, 3 times daily) resulted in a significant decrease of deoxycholic acid, expressed as a percentage of total bile acids, and in a significant fall of the chenodeoxycholic acid/cholic acid ratio of the bile. The bile acids/cholesterol ratio showed a tendency toward higher values though was nonsignificant.

7885 ON THE MECHANISM OF ACTION FOR THE EFFECT OF CHOLECYSTOKININ ON THE CHOLEDOCHODUODENAL JUNCTION IN THE CAT. *(E.)* Hedner, P. (U. Hosp., Lund, Sweden) and G. Rorsman. *Acta Physiol Scand* 76(1/2):248-254, 1969.

Choledochoduodenal junction resistance was studied by measuring the flow from the common duct into the duodenum under constant infusion pressure and by measuring the intracholedochal pressure under constant infusion rate. The choledochoduodenal junction contains a real sphincter in which the normal contracted state depends on an intact cholinergic nerve supply. As the effect of cholecystokinin on the small intestine is mediated by a cholingergic pathway, a similar mechanism of action for its effect on the choledochoduodenal junction was questioned. However, cholinergic and adrenergic mechanisms could be blocked by atropine and reserpine without affecting the antagonism of cholecystokinin to the contraction of the spincter elicited by bradykinin. The effect of cholecystokinin on the choledochoduodenal junction seems to be a direct one and related rather to its effect on the gallbladder than to its effect on the small intestine.

7886 THE EFFECT OF SUBSTRATE ANALOGUES ON THE ACTIVITY OF CAT LIVER UROCANASE. *(E.)* Swaine, D. (Dept. Biochem., U. Bristol, England). *Biochim Biophys Acta* 178(3):609-618, 1969.

A rapid reproducible method for the isolation of substantially pure urocanase from cat liver has been developed. The enzyme has a molecular weight of 127,000 and is isoelectric at pH 5-4. The $K_m$ for the urocanase-urocanate complex was 7.1 $\mu$M. No evidence could be found for a requirement for pyridoxal phosphate. The enzyme was inhibited by $NH_2OH$ but complete activity was restored after dialysis or gel-permeation chromatography. Only trans-urocanic acid was a substrate. Imidazolylpropionic acid was an effective inhibitor, but of other analogues tested only imidazolyllactic acid and α-chloroimidazolylpropionic acid were inhibitors and much less effective.

7887 BIOSYNTHESIS OF SERUM PROTEINS AND FERRITIN BY FREE AND ATTACHED RIBOSOMES OF RAT LIVER. *(E.)* Redman, M. C. (New York Blood Ctr., N. Y.). *J Biol Chem* 244(16):4308-4315, 1969.

Polysomes of rat liver appear to be either attached to the membrane of the endoplasmic reticulum or free in the cytoplasm. Attached ribosomes may be engaged in the synthesis of secretory proteins while free ribosomes make nonexportable proteins. Experimental support for this was obtained by studying the site of synthesis of serum proteins, an example of secretory proteins, and of ferritin, an example of a nonexportable protein. Two to three min after an i.v. injection of $^3$H-leucine into the rat there is equal and maximum incorporation, per mg of RNA, into trichloracetic acid-insoluble proteins bound to both free and attached ribosomes. The newly formed protein attached to the ribosomes was released by treatment with spermine and puromycin. About 80% of the newly formed serum protein recovered by this method was obtained from the attached ribosomes. The radioactive ferritin, however, was found to occur in the proteins released from the free ribosomes. Similar results were obtained by incubating free and attached polysomes (microsomes) *in vitro* with radioactive amino acids and under conditions for protein synthesis. Again, over 80% of the protein synthesized by attached ribosomes was found to be serum proteins, and the free ribosomes made 7-20 times more ferritin than did attached ribosomes. The radioactive proteins were detected and isolated by precipitation with specific antisera and the specificity of the methods checked by a combination of immunoelectrophoresis and autoradiography.

### 7888 THE RELEASE OF LIPOPROTEINS BY RAT LIVER SLICES.

*(E.)* Kook, A. I. (Dept. Biochem., McGill U., Montreal, Canada) and D. Rubinstein. *Canad J Biochem* 47(1):65-69, 1969.

The release of the lipid and protein moieties of lipoproteins by liver slices from rats charged *in vivo* with 9,10-$^3$H-palmitate and $^{14}$C-1-leucine was followed. The replacement of Ringer solution by serum as the incubation medium resulted in an increased release of the labeled lipid moiety but had no effect on the radioactivity of the protein moiety. Analysis of the lipoproteins indicated that serum had no effect on the radioactivity of the neutral lipid in the lipoprotein of $d < 1.063$ or $\beta$-lipoproteins prepared by ultracentrifugation or heparin precipitation, resp. The lipoprotein of $d < 1.063$ released into serum contained considerable amounts of labeled phospholipids and fatty acids which were not present in the $\beta$-lipoprotein precipitated by heparin or in the low density lipoproteins prepared by either procedure following incubation in Ringer solution. After incubation of the slices in serum, but not in Ringer solution, the lipoprotein having $d > 1.063$ and the supernatent of the heparin precipitate contained considerable amounts of labeled phospholipid. Serum may contain a lipoprotein capable of combining with liver phospholipids and ultracentrifugation results in the separation of low density lipoproteins containing excess lipid.

### 7889 HUMAN LIVER ALDEHYDE DEHYDROGENASE: PARTIAL PURIFICATION AND PROPERTIES.

*(E.)* Blair, A. H. (Dept. Biochem., Dalhousie U., Halifax, Canada) and F. H. Bodley. *Canad J Biochem* 47(3):265-272, 1969.

Aldehyde dehydrogenase was partially purified from human liver. During purification, activity was resolved into 1 major and 1 minor species by DEAE-cellulose column chromatography; the properties of the predominant form were investigated. Aldehydes are oxidized when NAD$^+$, but not NADP$^+$, is the electron acceptor, maximal activity occurring between pH9 and 10. Several aliphatic aldehydes and hydroxyaldehydes served as substrates for the enzyme. Benzaldehyde also was oxidized, but at a comparatively low rate. Aliphatic aldehydes carrying negatively charged groups are not oxidized. The enzyme is sensitive to low concentrations of 2 sulfhydryl reagnets, *p*-chloromercuribenzoate and mercuric ions; this inhibition was reversed with sulfhydryl compounds. Like other aldehyde dehydrogenases, the human liver enzyme is inhibited by arsenite and the inhibition is potentiated by mercaptoethanol. Only 35% inhibition was produced by disulfiram at 40 $\mu$M; and diethyldithiocarbamate, its metabolic reduction product, had no effect on activity below 10 mM.

### 7890 THE EFFECTS OF PYRIDOXAL PHOSPHATE ON RABBIT LIVER AND KIDNEY FRUCTOSE 1,6-DIPHOSPHATASES.

*(E.)* Krulwich, T. A. (Albert Einstein Coll. Med., Bronx, N. Y.), M. Enser and B. L. Horecker. *Arch Biochem* 132(1):331-337, 1969.

Rabbit liver and kidney fructose 1,6-diphosphatases (FDPases) rapidly became desensitized to inhibition by AMP and were partially inactivated when treated with pyridoxal 5'-phosphate. Pyridoxal was somewhat less active than pyridoxal 5'-phosphate and pyridoxamine was inactive. Inactivation and desensitization were reversed by dilution. AMP protected both enzymes against desensitization. It also protected the liver enzyme against loss of catalytic activity, but not the kidney enzyme, which was more sensitive. Pyridoxal 5'-phosphate reacted with approximately 8 $\epsilon$-amino lysine groups in liver FDPase, but the extent of desensitization was complete after incorporation of 4-5 equivalents. The amount of pyridoxal 5'-phosphate that was incorporated was increased with AMP. With kidney FDPase, approximately 11 equivalents of pyridoxal 5'-phosphate were incorporated, and this was not increased by the presence of AMP. The product of the reaction with pyridoxal phosphate was characterized by spectral studies and N-pyridoxyllysine was isolated from hydrolyzates of pyridoxal 5'-phosphate-enzyme complexes that had been reduced with sodium borohydride. In addition to differences in their reactions with PLP, rabbit liver and kidney FDPases differ significantly in amino acid composition. However, they appear to be similar in molecular weight and subunit structure.

### 7891 HEPATOTOXICITY AND LIPID METABOLISM - I STRUCTURE OF LIVER TRIGLYCERIDE IN RATS DOSED WITH CARBON TETRACHLORIDE.

*(E.)* Sugano, M. (Kyushu U. Sch. Agric., Fukuoka, Japan), K. Imaizumi, S. Cho, K. Hori and M. Wada. *Biochem Pharmacol* 18(8):1961-1970, 1969.

The positional distribution of fatty acids in triglycerides of liver and adipose tissue of fasted female and male rats given carbon tetrachloride ($CCl_4$) intragastrically 6 and 24 hr previously were compared with that of the paired controls. Liver triglycerides from rats sacrificed 6 hr after $CCl_4$ treatment contained, in terms of percentage composition, significantly more palmitic acid and less linoleic acid. This effect can be attributed to a change in the composition at the 1,3-positions of the glycerides; namely, more palmitate and less linoleate presented at these loci. By 24 hr the positional composition of the triglycerides resembled that of controls, in comparison with 6-hr specimens. This was mainly due to the correction in the percentage of palmitic acid, but not linoleic acid. The fatty acid composition of the 2-position of hepatic triglycerides was also slightly modified at the early time after $CCl_4$; thus, the percentage of oleic acid was increased. The structure of adipose tissue triglycerides was not influenced by $CCl_4$ and was not necessarily similar to the accumulated liver triglycerides. The operation of alternative, unknown pathway(s) of triglyceride synthesis in the liver of rats intoxicated with this chlorinated hydrocarbon is thus indicated.

### 7892 PARTIAL PURIFICATION AND PROPERTIES OF ATP:GMP PHOSPHOTRANSFERASE FROM

**RAT LIVER.** *(E.)* Buccino, R. J. Jr. (Div. Biol. Sci. U. Connecticut, Storrs) and J. S. Roth. *Arch Biochem* 132(1): 49-61, 1969.

A nucleoside monophosphate kinase has been purified 250-fold from normal adult rat liver by centrifugation, isoelectric precipitation, ammonium sulfate fractionation, alumina Cγ adsorption, DEAE-cellulose chromatography, and hydroxylapatite adsorption. The enzyme preparation is highly specific for (d)GMP as the phosphate acceptor and for (d)ATP as the phosphate donor. XMP, IMP, TMP, (d)AMP, (d)CMP, UMP, 6-thio(d)GMP, guanosine, and deoxyguanosine will not serve as substrates. 6-thio(-d)GMP, 8-azaGMP, and 8-bromoGMP can replace (d)GMP to some extent. The enzyme prepared from the Morris 7793 or Dunning hepatomas has the same substrate specificity with respect to 6-thio analogs of (d)GMP. The enzyme preparation is free of ATP-ase and nucleoside diphosphokinase activity. The ratio of GMP to dGMP kinase activity remains constant throughout the purification. dGMP kinase activity is stimulated 3-fold by potassium ion and to a lesser extent by ammonium and rubidium and is inhibited by cesium and lithium. Sodium has no effect. GMP kinase activity is relatively unaffected by these metal ions. The enzyme requires magnesium ion for activity. The optimum ratio of ATP to magnesium is 1. This ratio is unaffected by the presence of potassium. The enzyme has a molecular weight of about 20,500, as determined by gel filtration. The molecular weight is unaffected by potassium. The GMP and dGMP kinase activities are nonadditive, inhibited by 8-aza, 6-thio and 8-bromoGMP, unaffected by 6-thioGMP, inhibited by iodoacetate, iodacetamide, p-hydroxymercuribenzoate, N-ethylmaleimide and 5,5'=dithiobis(2-nitrobenzoic acid), and unaffected by mercaptoethanol and dithiothreitol. Potassium has no effect on the relative rate of inactiviation by iodoacetate or iodoacetamide or on the ability of GMP and ATP to protect the enzyme from iodoacetamide.

7893 **A VERSATILE METHOD FOR THE *IN VITRO* PERFUSION OF ISOLATED ORGANS OF RATS AND MICE WITH PARTICULAR REFERENCE TO LIVER.** *(E.)* Květina, J. (Mario Negri Inst. Pharmacol. Res., Milan, Italy) and A. Guaitani. *Pharmacology (Basel)* 2(2):65-81, 1969.

Apparatus to perfuse *in vitro* isolated rat and mouse liver is described. The advantages of the new method include smaller and more compact equipment and the use of a peristaltic pump. Among the parameters tested to establish the function of the perfused liver were: levels of protein, urea, glutamic-oxalacetic transaminase glucose, "FFA," phospholipids, triglycerides, cholesterol, BSP-test hemolysis of perfusion liquid, bile volume, concentration of bilirubin in bile, BSP excreted in bile, dry tissue component and levels of protein, glycogen, phospholipids, triglycerides, cholesterol and succinic dehydrogenase in liver tissue after perfusion. Histological and histochemical tests were also performed. The results obtained indicate that the liver can be kept in good condition for at least 90 min. This method can also be adapted for the perfusion of the isolated lung and possibly of other organs.

7894 **PERFUSION OF THE ISOLATED RAT LIVER AND STUDY OF THE TOXICITY OF ALLYL ALCOHOL.** *(Fr.)* Infante, R. (St. Antoine Hosp., Paris, France), V. Schwarzmann, D. Petit, A. Raisonnier and J. Caroli. *Biol Gastroent* 1(Suppl 1):71-78, 1969.

The toxicity of allyl alcohol was studies, using an isolated and perfused rat liver. Studies of LDH, MDH, GPT, GOT, GDH and ADH enzymes showed a regular passage of LDH, MDH and GPT in the blood during perfusion. Introducing in the perfusion circuit 0.01 μl/ml allyl alcohol, no significant variations of blood enzymes were observed. At the dose of 0.1 μl/ml, allyl alcohol caused remarkable variations, maximum after 90 min: in the blood LDH increased 100 times, MDH 150 times, GPT 100 times of their initial values. At the same time LDH in the liver decreased from 320,000 U/g to 145,000; MDH from 755,000 U/g to 325,000; GPT from 122,000 U/g to 54,000. GDH and ADH were not found in the blood, and had a normal activity in the liver. At a dose of 1 μl/ml, allyl alcohol caused considerable variations: during the 1st hr the enzyme levels in the blood reached values obtained after 90 min with the lower dose of 0.1 μl/ml, and continued to increase. The bile flow was increased by high dose of allyl alcohol, probably because of the initial vaso-dilatation, and stopped after 30-40 min. The histological lesions varied with the dose, from dilatation and congestion of the sinusoids to hemorrhagic foci and more or less diffuse areas of necrosis.

7895 **THE EFFECT OF VARIOUS 3'5' CYCLIC NUCLEOTIDES ON GLUCONEOGENESIS AND GLYCOGENOLYSIS IN THE PERFUSED RAT LIVER.** *(E.)* Conn, H. O. (Washington U. Sch. Med., St. Louis, Mo.) and D. M. Kipnis. *Biochem Biophys Res Comm* 37(2):319-326, 1969.

Isolated perfused rat livers were used to study the effects of various 3'5' cyclic nucleotides on hepatic gluconeogenesis and glycogenolysis. Each of the 3'5' purine nucleotides (cyclic 3'5'-adenosine monophosphate, 3'5'-guanine monophosphate and 3'5'-inosine monophosphate) increased gluconeogenesis equally and to the same degree as maximal doses of glucagon. The 3'5' pyrimidine nucleotides (uridine and cytidine) caused modest increments in gluconeogenesis but thymidine had no gluconeogenic effect. A similar pattern of stimulation was observed on hepatic glycogenolysis. The 3'5' purine nucleotides were equally potent stimulators of glycogenolysis and produced effects comparable to glucagon. Cyclic uridine and cytidine were less effective and thymidine had no glycogenolytic activity.

7896 **HEPATIC PRESERVATION WITH CHLORPROMAZINE AND PHENOXYBENZAMINE; APPLICATION TO LIVER TRANSPLANTATION.** *(E.)* Fonkalsrud, E. W. (UCLA Sch. Med., Los Angeles, Calif.), D. M. Rangel, J. Byfield, W. Bruckner, G. H. Stevens and A. Dinbar. *Surgery* 66(1):23-33, 1969.

Revascularization after hepatic ischemia in unprotected dogs for periods of up to 2 hr resulted in prompt release into the circulation of large quantities of the lysosomal hydrolytic enzymes, β-glucuronidase, and acid phosphatase. A fivefold increase in the plasma activity of these enzymes usually occurred after 60-90 min of ischemia and was almost invariably followed by death of the dogs within 24 hr. Dogs pretreated with phenoxybenzamine (2.5 mg/kg) or chlorpromazine (3 mg/kg) showed a greatly delayed and decreased release of these enzymes into the circulation and almost invariably survived after 2 hr of hepatic ischemia. Eight donor dogs and 1 human donor received chlorpromazine or phenoxybenzamine as the only method of hepatic preservation before allotransplantation. Each recipient experienced minimal hypotension or bleeding following revascularization and survived for more than 1 week.

7897 **COMPARISON OF THE BIOCHEMICAL ALTERATIONS ELICITED IN LIVERS FROM RATS TREATED WITH CARBON TETRACHLORIDE, CHLOROFORM, 1,1,2-TRICHLOROETHANE AND 1,1,1-TRICHLOROETHANE.** *(E.)* Klaassen, C. D. (Coll. Med., Iowa, Iowa City) and G. L. Plaa. *Biochem Pharmacol* 18(8): 2019-2027, 1969.

The comparative effects of carbon tetrachloride ($CCl_4$), chloroform, 1,1,1-trichloroethane and 1,1,2-trichloroethane were studied in rats. $CCl_4$ produced the highest increase in hepatic triglycerides and also produced elevated levels at the lowest dose (0.03 ml/kg). Chloroform was intermediate in producing elevated liver triglyceride levels; with 1,1,2-trichloroethane, enhanced triglyceride levels were demonstrated only at near-lethal dosages. No enhanced hepatic triglyceride level was demonstrated with 1,1,1-trichloroethane. Significant dose-related decreases in glucose 6-phosphatase acitivy were demonstrated with doses of 0.3 ml/kg of $CCl_4$ or greater. With the other chlorinated hydrocarbons, no decrease in hepatic glucose 6-phosphatase activity was detected. When the hydrocarbons were added directly to liver homogenates, only those incubations containing $CCl_4$ exhibited increased lipid peroxidation (enhanced thiobarbituric acid reactants). *In vivo*, evidence of lipid peroxidation (diene conjugates) in the liver was obtained 15 min after $CCl_4$ treatment; this effect reached its peak at 30 min. Enhanced diene conjugates were detected with doses of 0.3 ml/kg of $CCl_4$ or greater. With the other three hydrocarbons, however, no increase in diene conjugates was detected. While the temporal relationships of $CCl_4$-induced hepatotoxicity are compatible with the lipid peroxidation hypothesis, the dosage relationship is weaker. The lack of qualitative similarity in the results obtained with chloroform is disturbing.

7898 **ALIPHATIC L-α-HYDROXYACID OXIDASE FROM RAT LIVER. II. A FLAVOPROTEIN.** *(E.)* Ushijima, Y. (Sch. Med., Gunma U., Maebashi, Japan) and M. Nakano. *Biochim Biophys Acta* 178(3):429-433, 1969.

An aliphatic L-α-hydroxyacid oxidase present in a light mitochondrial fraction of rat liver cells was purified some 600-fold. At this stage the enzyme had a purity of 67%. The enzyme was still contaminated with catalase, and its absorption spectrum did not show a typical flavoprotein curve. Absorbance at 460 mμ was rapidly reduced by the addition of dithionite in air or of substrate during anaerobiosis. The difference spectrum of the reduced enzyme suggested that the enzyme is a flavoprotein. Spectrophotometry and paper chromatography of the extract of the enzyme after heat treatment indicated that the prosthetic group is flavine mononucleotide.

7899 **LOCALIZATION OF CERULOPLASMIN BIOSYNTHESIS IN HUMAN AND MONKEY LIVER CELLS AND ITS COPPER REGULATION.** *(E.)* Neifakh, S. A. (USSR Acad. Med. Sci., Leningrad), N. K. Monakhov, A. M. Shaposhnikov and Yu. N. Zubzhitski. *Experientia* 25(4):337-344, 1969.

Human ceruloplasmin differs only slightly from monkey *(Macacus rhesus)* ceruloplasmin in its physico-chemical properties. Study of the antigenic properties of the 2 proteins also demonstrated their identity. Monkey liver slices incubated under conditions of active respiration and oxidative phosphorylation resulted in increased catalytic activity of ceruloplasmin in paraphenylenediamine-HCl (PPD) oxidation process ("oxidase reaction"), primarily intracellularly (in the soluble cell fraction). Some factors indicate that the higher intensity of oxidase reaction corresponds to actual *de novo* protein production rather than to a mere increase in its specific activity. There is hardly any doubt that ceruloplasmin biosynthesis takes place in the incubation of monkey liver slices. Since ceruloplasmin is localized only in human liver cells and is not found in other organs from which it could be transported to the liver, then it is only in the liver that ceruloplasmin biosynthesis can take place just as in the monkey. During the incubation of monkey liver slices the addition of copper sulfate to the medium markedly inhibited ceruloplasmin biosynthesis, and this effect was confirmed by injecting copper into monkeys. Copper, which is the object of transport function of ceruloplasmin, controls in its turn the biosynthesis of ceruloplasmin. In toxic inhibition of ceruloplasmin biosynthesis by copper, monkeys developed some symptoms similar to Wilson's disease. In Wilson's disease, the tissues accumulate copper which is not involved in metabolism due to ceruloplasmin deficiency, while the excess of copper in liver cells further inhibits ceruloplasmin biosynthesis - a peculiar vicious circle which impairs the state of the patient's metabolic system.

7900 **STIMULATING FACTORS OF HEPATIC REGENERATION: IMPORTANCE OF ANABOLIC STEROIDS IN THE REACTIVE REGENERATION OF CHRONIC HEPATOPATHIES.** *(Fr.)* Nicolaescu, T. (D. Danielopolu Inst. Normal Pathol. Physiol., Bucharest, Romania), A. Bordeianu, E. Bittman, E. Gabrielescu, P. Stotculescu and N. Drăgulescu. *Rev Roum Physiol* 6(2):119-126, 1969.

The stimulation of the hepatic regenerative process has been studied in 12 subjects with chronic hepatitis and 8 with liver cirrhosis, treated with anabolic steroids. Clinical, morphological, and functional studies of 16 factors were made more than 90 times. A dose of 50 mg/day of methylandrostanediol for an average period of 14 months had been given to the patients. A regeneration of the liver parenchyma was observed histologically in 2/3 of the subjects. The blood picture was normalized in almost 50% of the patients. Modifications in Quick's test were less frequent. On the basis of the laboratory data and the clinical signs, an improvement was observed in 9 of 20 patients.

7901 **CHOLESTEROL METABOLISM EFFECT OF TEMPORARY COMPLETE BILIARY DIVERSION IN MAN.** *(E.)* de Palma, R. G. (Dept. Surg., Case

Western Reserve U., Cleveland, Ohio), P. H. Hartman and C. A. Hubay. *Amer J Surg* 117(5):662-665, 1969.

The effects of complete biliary diversion on bile volume, bile acid excretion, and serum cholesterol were studies in 3 patients, undergoing cholecystectomy and choledochotomy for benign biliary tract disease. A T tube with an inflatable balloon in its distal limb was used. Compared to partial drainage, total biliary diversion for 6 hr in 2 patients and 24 hr in 1, resulted in no net alteration of bile volume or bile acid excretion via the side arm of the T tube. The serum cholesterol was not reduced further. Partial diversion with a conventional T tube may represent a maximal stimulus to cholesterol catabolism. The procedure was well tolerated; the T tube was safe and effective, and may be of diagnostic aid in the detection of intrahepatic disease.

7902 BILE FLOW IN THE RAT AFTER ENTERAL ADMINISTRATION OF BILE SALTS. *(E.)* Nightingale, C. H. (State U. New York, Buffalo) and M. Gibaldi. *Amer J Dig Dis* 14(8):545-556, 1969.

The effects of enteral administration of various bile salts on bile output were investigated in male Sprague-Dawley rats (mean weight 275 g). After intraduodenal administration, all bile salts significantly increased bile flow, and total bile output. Dehydrocholate had the greatest effect on bile flow. Cholate was next in degree of effectiveness followed by taurocholate, deoxycholate, and taurodeoxycholate. Bile output was significantly lower after ileal or gastric intubation of sodium dehydrocholate or taurocholate than after duodenal administration. Conjugation of the bile salts tended to depress the total effect on bile flow. Comparison of the effects of sodium dehydrocholate and taurocholate after intraduodenal and intravenous or intraperitoneal administration suggests that absorption rate or efficiency of absorption markedly influences the intensity of apparent choleretic activity. A relationship between the structure of the bile salt and bile flow stimulation was observed: the triketo form was more effective than the trihydroxy form and that, in turn, was more effective than the dihydroxy form. This is difficult to explain in terms of differences in absorbability but is consistent with a choleresis mechanism involving osmotic pressure effects. At a dose of 100 $\mu$ M, in the rat, dehydrocholate does not function simply as a hydrocholeretic agent. Nevertheless, on the basis of the relative amount (%) of solids in stimulated bile, there are clear differences in the nature of the choleretic activity of dehydrocholate and cholate.

7903 THE EFFECTS OF DIETARY FAT ON FATTY ACID SYNTHESIS AND MALIC ENZYME ACTIVITY IN LIVER FROM GROWING CHICKS. *(E.)* Goodrige, A. G. (U. Kansas Med. Ctr., Kansas City). *Canad J Biochem* 47(7):743-746, 1969.

Dietary fat (corn oil) did not reduce the activity of liver malic enzyme and lipogenesis in liver slices from 7-day old chicks. (Tristearin, egg oil, and oleic acid were ineffective also.) Chicks fed fat-free diets had the same rates of fatty acid synthesis and the same malic enzyme activity as chicks fed the fat-free diets supplemented with 10 or 15% corn oil. (This amount of dietary fat markedly decreases liver lipogenesis in rats previously fed fat-free diets.) Chicks fed a fat-free diet for 23 days then for 6 days a diet supplemented with 15% corn oil also showed no change in the ability of liver slices to synthesize fatty acids. The force feeding of corn oil also failed to suppress lipogenesis. Apparently dietary fat has no direct suppressing effect on the conversion of glucose to fatty acids in young chick liver (although it still may influence this process by reducing the amount of carbohydrate consumed per gram or calorie of diet). The lack of suppression of hepatic lipogenesis by dietary fat was probably not due to poor absorption of fat. In the chick, in contrast to the rat, dietary fat does not seem to suppress hepatic lipogenesis.

7904 ENZYMATIC CHANGES IN THE SERUM IN COMMON BILE DUCT OBSTRUCTION. *(Cz.)* Ninger, E. (Med. Fac., Purkyne U., Brno, Czechoslovakia). *Cas Lek Cesk* 106(49):1327-1330, 1967.

7905 LOCAL AND GENERALIZED EFFECTS OF LOCAL RADIATION. PART 1. EFFECTS OF LOCAL RADIATION TO THE LIVER AND UPPER INTESTINE IN PARTIALLY HEPATECTOMIZED, SHAM-OPERATED AND NORMAL RATS. *(E.)* Looney, W. B. (U. Virginia Sch. Med., Charlottesville) and L. O. Chang. *Radiology* 89(5):906-918, 1967.

7906 EFFECT OF PHENOBARBITAL AND OTHER DRUGS ON THE METABOLISM AND UTEROTROPIC ACTION OF ESTRADIOL-17$\beta$ AND ESTRONE. *(E.)* Levin, W. (Burroughs Wellcome Co., Inc., Tuckahoe, N. Y.), R. M. Welch and A. H. Conney. *J Pharmacol Exp Ther* 159(2):362-371, 1968.

7907 BIOLOGIC STUDIES OF CHOLESTANE-3$\beta$, 5$\alpha$, 6$\beta$-TRIOL AND ITS DERIVATIVES. III. THE METABOLIC FATE AND METABOLITES OF CHOLESTANE-3$\beta$, 5$\alpha$, 6$\beta$-TRIOL IN ANIMALS. *(E.)* Kikuchi, S. (Biol. Res. Lab, Takeda Chem. Indust., Ltd., Osaka, Japan), Y. Imai, S. Ziro, T. Matsuo and S. Noguchi. *J Pharmacol Exp Ther* 159(2):399-408, 1968.

7908 EFFECT OF SINGLE AND FRACTIONATED REPEATED X-RAY IRRADIATION WITH A DOSE OF 600 R ON SOME LIPID FRACTIONS OF RATS FED A NATURAL AND SYNTHETIC DIET. *(Cz.)* Nemec, R. (Bratislava, Czechoslovakia) and V. Laginová. *Cesk Gastroent Vyz* 22(7):463-472, 1968.

7909 DIHYDROFOLATE REDUCTASE ACTIVITY IN MALE AND FEMALE RAT LIVERS. *(E.)* Bertazzoni, U. (Dept. Biochem., U. Iowa, Iowa City) and G. F. Lata. *Life Sci* 7(14):683-688, 1968.

7910 THE LIVER IN SHOCK. A STUDY OF POTASSIUM AND GLUCOSE EXCHANGE DURING PERFUSION OF THE ISOLATED ORGAN. *(E.)* Hardcastle, J. D. (The London Hosp., England). *J Roy Coll Surg Edinb* 12(5):313-314, 1968.

7911 VARIATIONS IN THE BILE FLOW IN ALBINO RATS TREATED WITH SULFURETED TABIANO WATER. *(It.)* Pisaneschi, M. (Dept. Hydrol. Med., U. Parma, Italy) and L. Farruggia. *Ateneo Parmense* 39(Suppl. 1):5-11, 1968.

7912 EFFECT OF BAPN ON LIPID DEPOSITION IN RAT LIVER AND AORTA. STUDIES USING 4-$^{14}$C-CHOLESTEROL. *(E.)* Rothfeld, B. (John Hopkins Hosp., Baltimore, Maryland), A. Karmen and C. F. Hunter. *J Nucl Med* 8(11):837-846, 1967.

7913 SPECIES VARIATION IN METABOLISM, STORAGE, AND EXCRETION OF SULFOBROMOPHTHALEIN. *(E.)* Klaassen, C. D. (Coll. Med., U. Iowa, Iowa City) and G. L. Plaa. *Amer J Physiol* 213(5):1322-1326, 1967.

7914 STERO-BILE ACIDS AND BILE ALCOHOLS. C. THE METABOLISM OF 5β-CHOLESTANE-3α,7α-DIOL IN THE EEL. *(E.)* Masui, T. (Hiroshima U. Sch. Med., Japan), S. Enomoto, T. Yamada and T. Kazuno. *Hiroshima J Med Sci* 16(2):105-113, 1967.

7915 STUDY OF AUXILIARY CANINE LIVER HOMOTRANSPLANTATION. A NEW TECHNIQUE OF AUXILIARY HOMOTRANSPLANTATION WITH TOTAL HEPATECTOMY. *(Jap.)* Terawaki, A. (Nara Med. U., Japan), Y. Enomoto, T. Takita, H. Nakano, N. Nakai, T. Ueda, T. Katsui and M. Yagi. *J Nara Med Assn* 20(2):146-151, 1969.

7916 DEPOLYMERIZATION OF POLYADENYLIC ACID BY SUBCELLULAR FRACTIONS OF RAT BRAIN AND LIVER. *(E.)* Murthy, M. R. V. (Fac. Med., Laval U., Quebec, Canada), A. D. Bharucha and C. Raynaud-Jammet. *Canad J Biochem* 47(3):283-289, 1969.

7917 EFFECTS OF PHOSPHATE AND OTHER IONIC COMPOUNDS ON THE ACTIVITY OF CRYSTALLINE BEEF LIVER GLUTAMATE DEHYDROGENASE. *(E.)* di Prisco, G. (Albert Einstein Coll. Med., Yeshiva U., New York, N. Y.) and H. J. Strecker. *Europ J Biochem* 9(4):507-511, 1969.

7918 REGULATION OF TYROSINE TRANSAMINASE IN THE ISOLATED PERFUSED RAT LIVER. *(E.)* Levitan, I. B. (McGill U. Cancer Res. U., Montreal, Canada) and T. E. Webb. *J Biol Chem* 244(17):4684-4688, 1969.

7919 EFFECT OF ANTICANCER DRUGS ON DNA SYNTHESIS AND MITOSIS IN REGENERATING RAT LIVER. *(E.)* Iwata, T. (Aichi Cancer Ctr. Res. Inst., Nagoya, Japan) and K. Ota. *Gann* 60(1):13-22, 1969.

7920 REGULATION OF THE SYNTHESIS OF RAT LIVER SERINE DEHYDRATASE BY ADENOSINE 3′,5′-CYCLIC MONOPHOSPHATE. *(E.)* Jost, J. P. (Natl. Jewish Hosp., Denver, Colo.), A. W. Hsie and H. V. Rickenberg. *Biochem Biophys Res Comm* 34(6):748-754, 1969.

7921 THE BIOCHEMICAL MECHANISM OF SELECTIVE HEAT SENSITIVITY OF CANCER CELLS. I. STUDIES ON CELLULAR RESPIRATION. *(E.)* Mondovi, B. (Inst. Biol. Chem., U. Rome, Italy), R. Strom, G. Rotilio, A. F. Agro', R. Cavaliere and A. R. Fanelli. *Europ J Cancer* 5(2):129-136, 1969.

7922 THE BIOCHEMICAL MECHANISM OF SELECTIVE HEAT SENSITIVITY OF CANCER CELLS. II. STUDIES ON NUCLEIC ACID AND PROTEIN SYNTHESIS. *(E.)* Mondovi', B. (Inst. Biol. Chem., U. Rome, Italy), A. F. Agro', G. Rotilio, R. Strom, G. Moricca and A. R. Fanelli. *Europ J Cancer* 5(2):137-146, 1969.

7923 EFFECTS OF RESIDUAL DDT ON *IN VIVO* AND *IN VITRO* HEPATIC METABOLISM OF SELECTED NONBARBITURATE DEPRESSANTS IN RATS. *(E.)* Nelson, M. J. (Food Drug Administration, Washington, D. C.), P. R. Datta and C. R. Treadwell. *Clin Toxic* 2(1):45-53, 1969.

7924 α-AMINOLEVULINATE DEHYDRATASE FROM OX LIVER AND TOBACCO LEAVES. *(E.)* Shetty, A. S. (Utah State U., Logan) and G. W. Miller. *Biochim Biophys Acta* 185(2):458-460, 1969.

7925 GLUCONEOGENESIS IN BIOTIN DEFICIENCY: *IN VIVO* SYNTHESIS OF PYRUVATE HOLOCARBOXYLASE IN BIOTIN DEFICIENT RAT LIVER. *(E.)* Deodhar, A. D. (Dept. Anim. Sci., U. Illinois, Urbana) and S. P. Mistry. *Biochem Biophys Res Comm* 34(6):755-759, 1969.

7926 LIVER PHOSPHOLIPIDS OF RATS DEPRIVED OF DIETARY CHOLINE. *(E.)* Beare-Rogers, J. L. (Food Drug Res. Lab., Ottawa, Canada). *Canad J Biochem* 47(3):257-263, 1969.

7927 CARNITINE ESTER HYDROLASE OF RAT LIVER. *(E.)* Mahadevan, S. (Canada Dept. Agric., Ottawa) and F. Sauer. *J Biol Chem* 244(16):4448-4453, 1969.

7928 THE EFFECTS OF NUTRITIONAL AND HORMONAL FACTORS ON THE FATTY ACID SYNTHETASE LEVEL OF RAT LIVER. *(E.)* Burton, D. N. (VA Hosp., Madison, Wis.), J. M. Collins, A. L. Kennan and J. W. Porter. *J Biol Chem* 244(16):4510-4516, 1969.

7929 OXIDATIVE PHOSPHORYLATION AND ADENOSINE TRIPHOSPHATASE ACTIVITY IN THE LIVER MITOCHONDRIA OF RATS ADMINISTERED WITH PHENYLHYDRAZINE AND HYDROLYZED GLUCOSE CYCLOACETOACETATE. *(E.)* Reddi, T. G. (U. Dept. Biochem., Nagpur, India) and M. C. Nath. *Canad J Biochem* 47(3):297-300, 1969.

7930 EFFECT OF VITAMIN C DEFICIENCY ON THE METABOLISM OF DRUGS AND NADPH-LINKED ELECTRON TRANSPORT SYSTEM IN LIVER MICROSOMES. *(E.)* Kato, R. (Natl. Inst. Hyg. Sci., Tokyo, Japan), A. Takanaka and T. Oshima. *Jap J Pharmacol* 19(1):25-33, 1969.

7931 THE DISTRIBUTION OF VITAMIN A AND PROTEIN IN THE DIFFERENT LOBES OF THE LIVER IN RATS. *(E.)* Djaeni S., A. (Med. Sch., U. Indonesia, Jakarta), J. S. Paramita and P. Soedarmo. *Paediat Indonesia* 9(2):74-79, 1969.

7932 DIFFERENCES IN THE OXIDATIVE METABOLISM OF DRUGS BY LIVER MICROSOMES. *(E.)* Kato, R. (Natl. Inst. Hyg. Sci., Tokyo, Japan), M. Takayanagi and T. Oshima. *Jap J Pharmacol* 19(1):53-62, 1969.

7933 NUCLEOTIDASE ACTIVITIES IN THE SOLUBLE FRACTION OF RAT LIVER HOMOGENATE. PARTIAL PURIFICATION AND PROPERTIES OF A 5′-NUCLEOTIDASE WITH pH OPTIMUM 6.3. *(E.)* Fritzson, P. (Norsk Hydro's Inst. Cancer Res., Oslo, Norway). *Biochim Biophys Acta* 178(3):534-541, 1969.

7934 THE EFFECTS OF CARBON TETRACHLORIDE AND ETHIONINE ON RNA SYNTHESIS *IN VIVO* AND IN ISOLATED RAT LIVER NUCLEI. *(E.)* Smuckler, E. A. (Dept. Pathol., U. Washington, Seattle) and M. Koplitz. *Arch Biochem Biop* 132(1):62-79, 1969.

7935 BIOSYNTHESIS OF 6β- AND 6α-HYDROXYPROGESTERONE IN THE HUMAN FOETAL LIVER. *(E.)* Lisboa, B. P. (Karolinska Inst., Stockholm, Sweden) and J. A. Gustafsson. *Europ J Biochem* 9(4):503-506, 1969.

7936 OXIDATION PHOSPHORYLATION IN RAT LIVER MITOCHONDRIA AT DIFFERENT STAGES OF ITS REGENERATION. *(Rus.)* Rusnak, I. K. (Chernigov Med. Inst., USSR) and I. V. Petrova. *Biull Eksp Biol Med* 68(8):54-55, 1969.

7937 THE RELATIONSHIP OF A SLIGHTLY SENSITIVE TO ACTINOMYCIN SEGMENT OF INTERPHASE WITH S AND $G_2$ PERIODS IN THE CELLS OF REGENERATING MICE LIVER. *(Rus.)* Beliaieva, I. D. (Inst. Biol. Med. Chem., Moscow, USSR). *Biull Eksp Biol Med* 68(8):99-101, 1969.

7938 RESEARCH FINDINGS ON BILE ENZYMES. *(Fr.)* Pappo, A. (Inst. Intern. Med., Bucharest, Romania), I. Apostolesco and M. Zamfiresco-Gheorghiu. *Rev Int Hepat* 17(6):555-564, 1967.

7939 CHANGES IN GLYCOGEN LEVEL IN THE LIVER OF ANIMALS UNDER THE EFFECT OF TOTAL VERTICAL VIBRATION. *(Rus.)* Iakubovich, T. G. (Leningrad Sanit. Hyg. Med. Inst., USSR). *Arkh Anat* 53(12):55-58, 1967.

7940 FUNCTIONAL MORPHOLOGY OF THE HEPATIC INTERCELLULAR JUNCTIONS. *(Fr.)* Pavel, I. (Bucharest, Romania), S. Campeanu, H. Bonaparte, A. Petrovici and M. Stoian. *Rev Int Hepat* 17(8):861-873, 1967.

7941 ULTRASTRUCTURAL ASPECTS OF THE LIVER IN GUNN RATS. *(Fr.)* Picardi, R. (Lausanne, Switzerland), D. Gardiol, A. Gautier and P. Magnenat. *Rev Int Hepat* 17(8):875-882, 1967.

7942 THE REACTIVITY OF THE LIVER OF WHITE RATS TO CHOLERETIC AGENTS IMMEDIATELY AFTER LIVER RESECTION. *(Rus.)* Garbarets, M. A. (Ternopol Med. Inst. USSR). *Biull Eksp Biol Med* 66(11):69-71, 1968.

7943 IRON RESERVES IN THE LIVER AND SPLEEN OF PREMATURE NEWBORN CHILDREN. *(Rus.)* Sultanova, G. F. (Sverdlovsk Sci. Res. Inst. Protect Mothers Child., USSR). *Vop Okhr Materin Dets* 13(3):81-82, 1968.

7944 EXPERIMENTALLY CALIBRATED BILIARY OBSTRUCTION. III. CHOLESTEROL, CALCIUM, BILE SALTS, ADIPIODONE. *(Fr.)* Besançon, F. (Bichat Hosp ., Paris, France), C. Roze, M. Souchard and C. Debray. *C R Soc Biol* 161(10):1896-1902, 1968.

7945 EXPERIMENTALLY CALIBRATED BILIARY OBSTRUCTION. IV. BILIARY CONCENTRATION OF ANTIBIOTICS. *(Fr.)* Barbier, P. (Bichat Hosp., Paris, France), F. Besançon and C. Debray. *C R Soc Biol* 161(10):1902-1904, 1968.

7946 CHANGES OF THE INFERIOR VENA CAVA AND FEMORAL VENOUS PRESSURES AFTER PARTIAL HEPATECTOMY AND DURING LIVER REGENERATION. *(E.)* Iconomidis, M. G. (Dept. Exp. Surg., Aristotelian U., Thessaloniki, Greece), A. Karamanlidis, D. Laoutatzis and G. Kanakoudis. *Int Surg* 49(1):45-49, 1968.

7947 CATECHOL-O-METHYL TRANSFERASE AND MONOAMINE OXIDASE ACTIVITIES IN THE HEART AND LIVER OF THE EMBRYONIC AND DEVELOPING CHICK. *(E.)* Ignarro, L. J. (Coll. Med. Sci., U. Minnesota, Minneapolis) and F. E. Shideman. *J Pharmacol Exp Ther* 159(1):29-37, 1968.

7948 SOME DISTINCTIVE PROPERTIES OF PYRUVATE KINASE PURIFIED FROM RAT LIVER. *(E.)* Susor, W. A. (Dept. Biochem. Genetics, U. Washington, Seattle) and W. J. Rutter. *Biochem Biophys Res Commun* 30(1):14-20, 1968.

7949 SPECIES AND SEX VARIATION IN THE HEPATIC METABOLISM OF $H^3$-DIGOXIN *IN VITRO*. *(E.)* Lage, G. I. (Coll. Med., U. Iowa, Iowa City) and J. L. Spratt. *J Pharmacol Exp Ther* 159(1):182-193, 1968.

7950 EFFECTS OF CYCLOHEXIMIDE ON DNA AND PROTEIN SYNTHESIS IN RAT LIVER. *(E.)* Tornheim, K. (Bureau Sci. Food Drug Administration, Washington, D. C.), R. G. O'Dell and L. Prosky. *Proc Soc Exp Biol Med* 131(2):601-605, 1969.

7951 RELEASE OF PLASMINOGEN ACTIVATOR FROM RAT LIVER LYSOSOMES INDUCED BY STRESS RELATED ENZYMES. *(E.)* Beard, E. L. (Dept. Biol. Sci., Loyola U., New Orleans, La.), G. F. Carroll and G. T. Danos. *Proc Soc Exp Biol Med* 131(2):438-442, 1969.

7952 LIVER XANTHINEDEHYDROGENASE. PURIFICATION AND PROPERTIES OF HUMAN AND PORCINE PREPARATIONS. *(Sp.)* Carrasco, E. (Dept. Biochem., U. Barcelona, Spain), J. Martin-Esteve and F. Calvet. *Rev Esp Fisiol* 24(4):193-202, 1968.

7953 THE ACTIVITY OF CERTAIN PHOSPHATASES IN THE NORMAL AND REGENERATED LIVER OF PREGNANT RATS. *(Rus.)* Kovalenko, N. Ia. (Inst. Exp. Biol., Moscow, USSR). *Biull Eksp Biol Med* 65(6):83-87, 1968.

7954 ANGIOTENSINASE ACTIVITY IN THE RAT LIVER HOMOGENATE. *(It.)* Degli Atti, B. (Inst. Special Med., U. Ferrara, Italy), R. Ripa and P. Gilli. *Boll Soc Ital Biol Sper* 44(17):1408-1410, 1968.

7955 STOFFWECHSEL DER ISOLIERT PERFUNDIERTEN LEBER. 3. KONFERENZ DER GESELLSCHAFT FUR BIOLOGISCHE CHEMIE. (METABOLISM OF THE ISOLATED PERFUSED LIVER. 3RD CONFERENCE OF THE SOCIETY FOR BIOLOGICAL CHEMISTRY). *(Ger.)* Staib, W. and R. Scholz, Eds. Berlin, Springer-Verlag, 1968. 258 pp.

7956 ON THE PROPERTIES OF THE 12α-HYDROXYLASE IN CHOLIC ACID BIOSYNTHESIS. BILE ACIDS AND STEROIDS 198. *(E.)* Einarsson, K. (Karolinska Inst., Stockholm, Sweden). *Europ J Biochem* 5(1):101-108, 1968.

7957 CHANGES IN SOME LIVER ENZYMES CAUSED BY ANESTHETICS. EFFECTS OF TRICHLOROETHYLENE. *(Sp.)* Grau Sbert, A. (Fac. Pharm., Madrid, Spain), A. Navarro Ruiz, J. Lucas Gallego and F. Cantero Gomez. *Medicamenta* 26(457):261-267, 1968.

See also: 7718,7721,7742,7747,7755,7768,7784,7804,7871,7875,8416,8618,8619,8623,8633,8637,8640,8642,8685,8698,
8728,8731,8740,8749,8776,8777,8779,8785,8786,8796,8804,8806,8824,8863

7958 **DIETARY REGULATIONS OF GLYCOLYTIC ENZYMES. IV. DIFFERENTIAL HORMONAL EFFECTS IN MALE AND FEMALE RAT JEJUNUM.** *(E.)* Stifel, F. B. (Fitzsimons Gen. Hosp., Denver, Colo.), R. B. Herman and N. S. Rosenweig. *Biochim Biophys Acta* 184(3): 495-502, 1969.

The effects of oral progesterone, diethylstilbesterol, 17β-estradiol and testosterone (100 µg/100 g body weight) upon the activity of 5 enzymes involved in carbohydrate metabolism (phosphofructokinase, pyruvate kinase, fructosediphosphatase, hexokinase and Fru-1,6-P$_2$ aldolase) were studied in the jejunum of both male and female rats. In male rats, jejunal phosphofructokinase activities were in the following order: testosterone >estradiol>diethylstilbesterol>progesterone>control ($P < 0.01$). Pyruvate kinase activites were in the same order, but the values in the progesterone- and diethylstilbesterol-fed rats were not significantly different. Fructosediphosphatase activities were in the following order: control>progesterone, diethylstilbesterol, estradiol>testosterone ($P < 0.01$). No differences were noted in the hexokinase or Fru-1,6-P$_2$ aldolase activities in the 5 groups. In female rats, jejunal phosphofructokinase activities were in the following order: estradiol> diethylstilbesterol>testosterone>progesterone>control ($P < 0.01$). Pyruvate kinase activities were in a similar order except that the values in the diethylstilbesterol- and estradiol-fed female rats were not significantly different. Fructosediphosphatase activities were in the following order: control>estradiol> progesterone>testosterone>diethylstilbesterol. No differences were noted in the hexokinase or Fru-1,6-P$_2$ aldolase activities in the 5 groups. In female rats, both progesterone and testosterone blocked the adaptive increase in the jejunal phosphofructokinase and pyruvate kinase activities caused by estradiol alone. In male rats, in contrast, estradiol blocked the testosterone-produced adaptive increases in the jejunal phosphofructokinase and pyruvate kinase activities. These data imply that the response of the jejunal enzymes to sex hormones is determined in part by the sex of the animal.

7959 **INHIBITION OF FREE INTRINSIC FACTOR ACTIVITY BY DUODENAL JUICE.** *(E.)* Temperley, I. J. (Dept. Pathol. Trinity Coll., Dublin, Ireland), D. G. Weir, D. Collery and J. M. Scott. *Gastroenterology* 57(3):273-279, 1969.

Human duodenal juice appears to contain a component of high molecular weight which renders intrinsic factor incapable of binding vitamin B$_{12}$. The extraordinary heat stability of this component suggests that it is not an enzyme. The degree of inhibition varies with different duodenal juices and depends on the concentration of duodenal juice, the temperature, and the length of incubation. Total inhibition of posthistamine gastric juice intrinsic factor can generally be achieved by incubation with an equal volume of undiluted duodenal juice for 2 hr at body temperature. The inhibitory component acts on intrinsic factor rather than by competition with intrinsic factor for available vitamin B$_{12}$.

7960 **ASSAY OF ACYL-CoA:MONOGLYCERIDE ACYLTRANSFERASE FROM RAT SMALL INTESTINE USING CONTINUOUS RECORDING SPECTROPHOTOMETRY.** *(E.)* Rodgers, J. B. Jr. (Albany Med. Coll., New York). *J Lipid Res* 10(4):427-432, 1969.

Acyl-CoA: monoglyceride acyltransferase in microsomal preparations from the small intestine of the fasting male Sprague-Dawley rat has been measured by means of continuous recording spectrophotometry. The reaction of 5,5′-dithiobis-(2-nitrobenzoic acid) with CoA has been employed for this assay and optimal conditions for the reaction have been defined. One of the substrates, palmitoyl-CoA, inhibited the reaction even in modest concentrations. This inhibition is largely prevented by the addition of bovine serum albumin to the incubation medium. The reliability of the assay method was confirmed by comparison with the more cumbersome assay method with radioactive substrate.

7961 **PROTEOLYTIC ACTIVITY OF NONPANCREATIC ORIGIN IN DIFFERENT SEGMENTS OF THE SMALL INTESTINE OF RATS.** *(E.)* Johnson, L. (Akademiska Hosp., Uppsala, Sweden), S. Wikström and G. Nylander. *Acta Chir Scand* 135(5):449-454, 1969.

Proteolytic activity in the small intestine was determined *in vitro*, and also indirectly by recording the radioactive iodine which was released from $^{125}$I HSA, during the hydrolysis of the albumin. The albumin was deposited in consecutive equal-sized segments of the small intestine. Each segment was then incubated in Krebs-Ringer solution for 9 consecutive periods of 15 min each. The transmural loss of radioactivity from the respective intestinal segments during these incubation periods was used as an indication of the proteolytic activity in the segments. The material comprised 20 rats. When the pancreatic secretion had entered the small intestine, there was considerable proteolytic activity which was most marked in the distal 5/12 of the intestine. When the pancreatic secretion was rinsed away, the proteolytic activity was reduced considerably, and the maximal activity at the distal end of the intestine was eliminated. The proteolysis was then greatest in a segment in the middle of the intestine, which reflected the peptidase activity of the intestinal mucosa. When the pancreatic secretion was blocked for 24 hr (by division of the common bile duct), the proteolytic activity in the intestine was further reduced. One hypothesis is that the stores of epithelial enzymes are reduced by the surgical procedure and the consequences thereof. One segment of the intestine whose localization was difficult to ascertain but which probably corresponded to the middle portion, showed increased proteolytic activity in comparison with the rest of the intestine.

7962 **THE HYDROLYSIS OF THE NATURALLY OCCURRING α-GLUCOSIDES BY THE HUMAN INTESTINAL MUCOSA.** *(E.)* Eggermont, E. (Lab. Physiol. Chem. U. Louvain, Belgium). *Europ J Biochem* 9(4):483-487, 1969.

An extract of human (infant, children, or adult) small intestine mucosa obtained by peroral biopsy was found to degrade glycogen, isomaltose, sucrose and maltose through the action of several hydrolytic enzymes, which were identified by experiments of competition between radioactive substrates and by some other properties (e.g., response to heat denaturation, pH changes and high speed centrifugation). Besides an α-amylase, which is soluble an d probably of pancreatic origin, 3 truly intestinal α-glucosidases are bound to cellular structures: a glucoamylase forms glucose from glycogen (Km = 0.65 mg/ml) and maltose (Km = 2 mM), a maltose-isomaltose, from maltose (Km = 1 mM) and isomaltose (Km = 7 mM) and a maltase-sucrase, from maltose (Km = 7 mM) and sucrose (Km = 17 mM).

7963 STUDIES ON INTESTINAL HYDROLYSIS OF PEPTIDES. II. DIPEPTIDASE ACTIVITY TOWARD L-GLUTAMINYL-L-PROLINE AND GLYCYL-L-PROLINE IN THE SMALL INTESTINE OF THE HUMAN FETUS. *(E.)* Rubino, A. (Clin. Obstet. Gynec., U. Naples, Italy), G. la Torretta, M. Vetrella, D. di Martino and S. Auricchio. *Pediat Res* 3(4):313-319, 1969.

Dipeptidase activity using substrates of glycyl-L-proline and L-glutaminyl-L-proline was studied in the small intestine of 16 human fetuses between 14 and 36 weeks of age. Levels of activity at 14-16 weeks of age were comparable to those found in adults. The level of activity of both enzymes was uniformly high in the proximal 6/10ths of the small bowel and lower in the terminal ileum. Activity was partially purified through gel filtration and characterized with regard to the influence of pH, substrate concentration, metal ions, heat treatment, ammonium sulphate precipitation, and DEAE cellulose chromatography. The results suggest that a qualitative variation of L-glutaminyl-L-proline dipeptidase activity occurs in the human fetus during maturation.

7964 HUMAN SMALL-INTESTINAL β-GALACTOSIDASES. SEPARATION AND CHARACTERIZATION OF ONE LACTASE AND ONE HETERO β-GALACTOSIDASE. *(E.)* Asp, N. G. (Dept. Physiol. Chem., U. Lund, Sweden), A. Dahlqvist and O. Koldovsky. *Biochem J* 114(2): 351-359, 1969.

Two β-galactosidases from human small-intestinal mucosa were separated by gel-filtration chromatography and the properties of the 2 enzymes studied. Lactose and 4 hetero β-galactosides were used as substrates. One of the enzymes was particle-bound and could be partially solubilized with papain. Of the substrates hydrolysed by this enzyme, lactose was hydrolysed most rapidly. This enzyme is thus essentially a disaccharidase and is named lactase. It is presumably identical with the 'lactase 1' described earlier. The other enzyme was mainly soluble and hydrolysed all artificial substrates used, whereas no lactase activity could be detected. This enzyme has therefore been designated hetero β-galactosidase. p-Chloromercuribenzoate (0.1 mM) inhibited the hetero β-galactosidase completely but did not influence the activity of the lactase. Tris was a competitive inhibitor of both enzymes. The residual lactase activity in the mucosa of lactose-tolerant patients may be exerted by a small amount of remaining lactase as such, or possibly by a third enzyme with a more acid pH optimum.

7965 QUANTITATIVE CHANGES IN ALKALINE PHOSPHATASE IN EPITHELIAL CELLS OF RAT SMALL INTESTINE FROM BIRTH TO WEANING. *(E.)* Millington, P. F. (Med. Sch., Bristol, England) and P. W. A. Tovell. *Histochem J* 1(4):311-321, 1969.

Alkaline phosphatase activity was measured in mucosal scrapings of rat small intestine from birth to weaning. The levels of activity were then compared with those found in brush border fractions and cell residues over the same period. The amount of activity found in the residues was too high and variable to be accounted for in terms of diffusion, and it is apparent that during the developmental period considerable quantities of enzyme are present in the cytoplasm. The duodenal changes were similar, in form, in both mucosal scrapings and brush border, but the changes in the ileal brush borders were markedly different from those found in the ileal mucosal scrapings. A peak in the activity measured in the brush border fraction was observed during the weaning period.

7966 BIOLOGICAL EFFECTS OF GASTROINTESTINAL ANTIBODIES. III. THE EFFECTS OF HETEROLOGOUS AND AUTOANTIBODIES ON DEOXYRIBONUCLEIC ACID SYNTHESIS IN THE STOMACH AND COLON OF GUINEA PIGS AND RABBITS. *(E.)* Hausamen, T. U. (Stanford U. Med. Sch., Palo Alto, Calif.), D. A. Halcrow and K. B. Taylor. *Gastroenterology* 56(6): 1071-1077, 1969.

Deoxyribonucleic acid (DNA) synthesis is inhibited in gastric mucosa after injection into male guinea pigs (300-500 g) of rabbit antisera against antigens from guinea pig gastric and colonic mucosa. As indicated by thymidine-methyl-$^3$H uptake studies. Rabbit antisera against antigens from guinea pig colonic mucosa also inhibit DNA synthesis in colonic mucosa, while antisera against gastric mucosa do not have any effect on the colon. DNA synthesis in gastric mucosa tends to be decreased in rabbits with circulating autoantibodies against antigens from stomach and colon, but DNA synthesis is significantly increased in colonic mucosa of the same rabbits.

7967 THE PARTIAL STREAM SAMPLING ASSUMPTION IN INTESTINAL PERFUSION STUDIES. *(E.)* Cooksey, J. C. (U. Illinois Res. Ed. Hosp., Chicago). *Bull Math Biophys* 31(2):307-317, 1969.

7968 SENSITIZATION OF GUINEA-PIG ILEUM TO THE ACTION OF BRADYKININ BY TRYPSIN HYDROLYSATE OF OX AND RABBIT PLASMA. *(E.)* Aarsen, P. N. (Pharmacol. Lab., U. Amsterdam, Netherlands). *Brit J Pharmacol* 32(2):453-465, 1968.

7969 THE SIGNIFICANCE OF DUODENAL JUICE ENZYMES IN NEWBORNS AND IN YOUNG CHILDREN. *(Ser.)* Milošević, V. (Med. Fac., U. Belgrade, Yugoslavia), L. Petrović, J. Žujović, I. Janković and L. Živančević. *Strpcki Arh Celok Lek* 96(3):263-268, 1968.

7970 A SIMPLE AND RAPID METHOD TO PREPARE DISPERSIONS OF COLUMNAR EPITHELIAL CELLS FROM THE RAT INTESTINE. *(E.)* Sjöstrand, F. S. (Dept. Physiol. Chem., U. Lund, Sweden). *J Ultrastruct Res* 22(5/6):424-442, 1968.

See also: 7753,7772,7777,7800,8164

7971 **VENTRAL SILON POUCH: METHOD OF REPAIRING CONGENITAL DIAPHRAGMATIC HERNIAS IN NEONATES WITHOUT INCREASING INTRA-ABDOMINAL PRESSURE.** *(E.)* Simpson, J. S. (Hosp. Sick Child., Toronto, Canada). *Surgery* 66(4):798-801, 1969.

Increased intra-abdominal pressure has probably been a major factor in the high death rate associated heretofore with the repair of congenital diaphragmatic hernia in the newborn infant. The one common factor in most of these deaths is poor pulmonary ventilation. A ventral prosthetic Silon pouch is proposed for neonates undergoing this repair. It is used to temporarily accommodate the abdominal viscera removed from the pleural cavity at the time of repair of the hernia, until the abdominal wall stretches sufficiently to allow them to be placed in the abdomen without undue tension. The prevention of increased intra-abdominal pressure facilitates diaphragmatic movement and increases respiratory efficiency. The pouch is used until the infant can breathe without assistance in room air at atmospheric pressure and maintain normal blood pH, $PO_2$, and $PCO_2$. This technique has been used in 2 newborn infants; 1 made an uneventful recovery, the other died on the 4th day after operation of an unestablished cause. Breathing was unimpeded in both of these infants in the immediate postoperative period.

7972 **INTESTINAL DAMAGE FOLLOWING A SINGLE AND FRACTIONATED IRRADIATION OF FAST NEUTRONS.** *(Jap.)* Nakagawa, K. (Natl. Inst. Radiol. Sci., Chiba, Japan). *Nippon Acta Radiol* 29(3):241-250, 1969.

Injury to normal and tumor tissues may be more intensive with fast neutrons than with X-rays and such injuries may be more marked in anoxic conditions. When fast neutrons are used in radiotherapy, it is important to know the normal tissue damage adjacent to the tumors following irradiation. Since the small intestine is also irradiated during the treatment of abdominal tumors, the damage to the gastrointestinal tract exposed to X-rays and fast neutrons in single and fractionated doses using investigated CRF-1 mice. The X-ray energy was 200 kVp (HVL 1.15 mm Cu) and that of the fast neutrons En = 2.0 MeV. $^{131}$I-Labelled polyvinylpyrrolydone ($^{131}$I-PVP) was used as an indicator of the protein loss from the gastrointestinal tract. On the 4th and 5th days after irradiation, leakages of $^{131}$I-PVP into the gastrointestinal tract were most evident when the dose level was above 500 r (X-rays) and 250 r (fast neutrons). When doses higher than 300 r of X-rays or 100 r of fast neutrons were irradiated, fecal excretion of $^{131}$I-PVP through the intestine increased as the irradiation doses increased. No significant differences in $^{131}$I-PVP excretion through the intestine were observed in single and fractionated experiments of fast neutrons. From these experiments, the relative biological effectiveness (RBE) of fast neutrons to X-rays for intestinal damage is 2.4 in a single dose and 3.2 in 2-fractionated doses. (48 hr interval).

7973 **EXPERIMENTAL STUDIES ON THE LYMPHATICS OF THE ESOPHAGUS FROM THE SURGICAL POINT OF VIEW.** *(E.)* Shiraha, S. (Kyoto U. Med. Sch., Japan). *Arch Jap Chir* 38(4):543-563, 1969.

After the injection of human $^{131}$I-albumin (2 ml, 50 μC) into various areas of the esophagus in dogs, measurements were made of radioactivity in the thoracic duct lymph, venous blood and lymph nodes. Increased $^{131}$I-albumin from the abdominal esophagus was seen 2 weeks after injection in the venous blood following removal of the lymph nodes. Ligation of the left gastric artery with removal of the lymph nodes in the upper abdominal region produced a marked decrease in $^{131}$I-albumin in the thoracic duct lymph and an increase in the venous blood 2 weeks after injection. There was a significant increase in radioactivity in the thoracic duct lymph 3 weeks after injection. The possible development of retrograde or collateral lymphatic circulation was shown by paraffin block of the lymphatics in the esophagus by $^{131}$I-albumin was diverted from the thoracic duct and into the venous blood. Vagotomy at the tracheal bifurcation resulted in a marked reduction of radioactivity in the thoracic duct lymph after injection of $^{131}$I-albumin into the same level of the esophagus, and a slight increase after injection into the lower thoracic esophagus. Ligation of the azygos and the intercostal veins caused a decrease in $^{131}$I-albumin both in the thoracic duct lymph and in the venous blood. The appearance of $^{131}$I-albumin from the distal segment of the transected esophagus was significantly reduced both in the thoracic duct lymph and in the venous blood.

7974 **PHYSIOPATHOLOGY OF INTESTINAL LYMPHATIC VESSELS.** *(E.)* Servelle, M. (Saint Michel Hosp., Paris, France), F. Rouffilange, J. Andrieux, J. Sbulie and H. Perrot. *J Cardiovasc Surg* 9(4):310-318, 1968.

7975 **CYSTIC ARTERIAL PATTERNS.** *(E.)* Gordon, K. C. D. (The London Hosp., England). *J Roy Coll Surg Edinb* 12(5):315, 1968.

7976 **ANEURYSMS OF THE PANCREATICODUODENAL ARTERY. [CASE REPORT]** *(E.)* West, J. E. (U. Tennessee Coll. Med., Memphis), H. Bernhardt and R. F. Bowers. *Amer J Surg* 115(6):835-839, 1968.

7977 **THE PRESENCE OF β-ADRENERGIC RECEPTORS IN THE HEPATIC VASCULATURE.** *(E.)* Geumei, A. (Dept. Pharmacol., Alexandria U., Egypt) and M. Mahfouz. *Brit J Pharmacol* 32(3):466-472, 1968.

7978 **VARIATIONS IN THE ABDOMINAL ARTERIES APPLIED TO RADICAL SURGERY AND TRANSPLANTATION PROCEDURES.** *(E.)* Mellière, D. (Paris U., France). *Rev Surg (Phila)* 25(5):305-313, 1968.

7979 **SPONTANEOUS COMMUNICATION BETWEEN THE PORTAL AND CAVAL SYSTEMS. STUDY OF 3 CASES.** *(Fr.)* Paris, J., A. Gérard, G. Toison, P. Quandalle and J. C. Paris. *Lille Med* 13(4):458-462, 1968.

7980 **THE EFFECT OF BILE ACIDS ON THE REFLEX EXCITABILITY OF THE SPINAL CORD.** *(Rus.)* Pityk, N. I. (Ivano-Frankovsk, Med. Inst., USSR). *Biull Eksp Biol Med* 65(3):76-77, 1968.

## GENERAL

7981 RELATIONSHIPS BETWEEN THE RIGHT AND LEFT BRANCHES OF THE INTRAHEPATIC ARTERIES. *(Sp.)* Suarez, A. R. (Med. Fac. Natl. U. Cordoba, Argentina) and R. E. Giménez. *Rev Argent Cir* 15(5/6):162-166, 1968.

7982 THE EFFECT OF INTESTINAL MICROFLORA INHIBITION BY ANTIBIOTICS IN MICE AND THEIR SUSCEPTIBILITY TO BACTERIAL INTOXICATION AND INFECTION. *(Rus.)* Zykov, I. N. (N. F. Gamalei Inst. Epidemiol. Microbiol., Moscow, USSR) and I. S. Petropavlovskaia. *Antibiotiki* 13(8):734-737, 1968.

7983 DYNAMICS OF CHANGES IN THE ARTERIAL BED OF THE LIVER WITH CONSTRICTION OF THE PORTAL VEIN IN THE DOG. *(Rus.)* Drozdova, A. V. (I. P. Pavlov 1st Leningrad Med. Inst., USSR). *Arkh Anat* 55(7):85-90, 1968.

7984 AGE CHANGES IN INTRAORGAN LYMPHATIC SYSTEM OF THE STOMACH IN SOME SPECIES OF MAMMALS. *(Rus.)* Balashev, V. N. (Leningrad Sanit. Hyg. Med. Inst., USSR). *Arkh Anat* 55(7):69-73, 1968.

7985 SOME PHARMACOLOGICAL ACTIONS OF DIETHYLDITHIOCARBAMATE ON RABBIT AND RAT ILEUM. *(E.)* Collins, G. G. S. (Sch. Pharm., U. London, England) and G. B. West. *Brit J Pharmacol* 32(2): 402-409, 1968.

7986 GASTRIC HYPOTHERMIA. EXPERIMENTAL STUDY OF THERMAL VARIATIONS. *(Sp.)* Pico, A. L. (San Martin Polyclin., Buenos Aires, Argentina) and J. Manrique. *Rev Argent Cir* 15(5/6):147-148, 1968.

7987 INTESTINAL BLOOD FLOW IN GASTROINTESTINAL IRRADIATION SYNDROME IN THE RAT. *(E.)* Jánossy, G. (U. Res. Team Med. Radiology, Budapest, Hungary). *Acta Med Acad Sci Hung* 26(1):13-21, 1969.

7988 PITUITARY-ADRENAL STIMULATING EFFEC OF SUPERIOR MESENTERIC VENOUS CONSTRICTION. *(E.)* Egdahl, R. H. (Boston U. Med. Ctr., Mass.) and L. Peck. *Endocrinology* 84(3):528-533, 1969.

See also: 7724,8122,8240,8241,8242,8594,8595,8685,8755,8783,8799,8923

# DIAGNOSTIC PROCEDURES

7989 **ULTRASONIC ECHO EXAMINATION AS AN AID IN DIAGNOSIS OF CONGENITAL BILE DUCT LESIONS.** *(E.)* Suruga, K. (Juntendo U., Sch. Med., Tokyo, Japan), Y. Hirai, K. Nagashima, T. Wagai and M. Inui. *J Pediat Surg* 4(4):452-456, 1969.

Preliminary trial ultrasonic echo examinations were carried out on children without discomfort or side effects and proved to be a useful adjunct in diagnosis of bile duct size in several cases of suspected biliary atresia and in 10 cases (all under 4 yr) of congenital dilatation of the bile ducts. Differential diagnosis from polycystic kidneys and tumors such as Wilms and nephroblastoma was possible. Since the prognosis for children with congenital bile duct dilatation is poor because of the accompanying biliary cirrhosis, ultrasonic echo examinations with early diagnosis can lead to surgical correction before irreversible cirrhosis develops.

7990 **LIVER AND SPLEEN SCINTISCANNING WITH INDIUM 113m. A CLINICAL PATHOLOGIC CORRELATION.** *(E.)* Potchen, E. J. (Washington U. Sch. Med., St. Louis, Mo.) and M. Adatepe. *Amer J Roentgen* 106(4):739-744, 1969.

Three hundred and thirty-one consecutive patients had liver and spleen scanning performed with indium 113m. A pathologically correlated follow-up was obtained in 92 instances. In liver malignancy, 2 of 34 were falsely positive and 1 of 12 was falsely negative. In proven cirrhosis, diffusely poor function was observed in all 7 patients. All 8 patients with a tissue diagnosis of fatty liver demonstrated diffusely poor function. In 9 patients with clinical hepatitis the scan was normal in 4. The specific patterns recognized on the indium 113m liver scan were correlated with the disease entity, and suggest that indium 113m is at least equivalent to other available radionuclides for hepatic reticuloendothelial demonstration. In addition, slight changes in preparatory techniques increase splenic accretion, and thus a new and useful agent for routine spleen scanning.

7991 **THE STARCH TOLERANCE TEST FOR FUNCTIONAL EVALUATION OF CHRONIC PANCREATIC DISEASE.** *(It.)* Bosello, O. (Dept. Special Med. Pathol. U. Padua, Italy), G. Cavallini, D. Causarano, G. Dobrilla, G. Previato and A. Viola. *Policlinico* 76(16):505-513, 1969.

The behavior of the starch tolerance test in the evaluation of exopancreatic function was studied in 23 control subjects, 3 cases of mumps, 17 cases of chronic pancreas disease, 6 cases of hypersiderosis, 11 cases of diabetes mellitus, 10 cases of acute hepatitis, 30 cases of chronic cirrhotic liver disease, 9 cases of apparently idiopathic dyspepsia and 5 gastrectomized subjects. The test proved to be normal or at most doubtful in all of the control subjects, but was pathological in 3 of 3 patients with epidemic parotitis, 9 of 17 patients with chronic pancreas disease, 4 of 6 patients with hypersiderosis, 6 of 11 patients with diabetes, 5 of 10 with acute hepatitis, 11 of 30 with chronic liver disease, 3 of 5 gastrectomized subjects and 1 of 9 subjects with dyspepsia. These results support the relative validity of this test: it is particularly altered in subjects with latent or manifest involvement of the pancreas. For a more exhaustive evaluation of the individual case, this test should be supplemented by the many other tests of pancreatic function.

7992 **APPLICATION OF OPTIMAL SPECTROPHOTOMETRIC METHODS FOR THE DETERMINATION OF SERUM GLUTAMIC OXALACETIC AND GLUTAMIC PYRUVIC TRANSAMINASE ACTIVITY FOR THE DIAGNOSIS OF LIVER DISEASES.** *(It.)* Cacciatore, L. (Clin. Infect. Dis., U. Naples, Italy), E. Filosa and G. Ruggiero. *Fegato* 15(1):113-127, 1969.

SGOT and SGPT activities of 47 healthy individuals and several patients with various liver diseases were determined by the spectrophotometric methods of Bergmeyer and Bernt which provide a precise measure of both serum transaminase activities and consequently permit an exact calculation of the SGOT/SGPT ratio. The results obtained clearly demonstrated the characteristic pattern of viral hepatitis. The SGOT (476.88 ± 366.80) and SGPT (821.39 ± 461.87) values reported for 114 cases of acute viral hepatitis were considerably higher than those found in the literature. The mean SGOT/SGPT ratio varied between 0.50 and 0.60. In the majority of 41 cases of cholestatic icterus the mean SGOT (82.18 ± 68.68) and SGPT (99.90 ± 107.49) values were only moderately increased compared to normal levels (12.48 ± 3.65 and 11.72 ± 4.56, resp.) with the SGOT/SGPT ratio greater than unity. The discriminative effectiveness of the transaminase activities, considered separately, is much greater for SGPT both for discrimination between hepatitic subjects and healthy subjects and for discrimination between subjects with viral hepatitis and those with cholestatic icterus.

7993 **THE VIGOROUS DIAGNOSTIC APPROACH TO UPPER-GASTROINTESTINAL TRACT HEMORRHAGE. A 23-YEAR PROSPECTIVE STUDY OF 1400 PATIENTS.** *(E.)* Palmer, E. D. (VA Hosp., East Orange, N. J.). *JAMA* 207(8):1477-1480, 1969.

Immediate esophagogastroscopy and contrast roentgenography provided identification of the bleeding in 93% of 1400 patients with severe, active hemorrhage. The youngest patients were 14 and the oldest 94. Fifty percent were between 32 and 50 and the mean age was 41. There were 102 women. In each case activity of the bleeding was determined by active vomiting of fresh red blood or by recovery of fresh red blood by gastric tube. The major causes of bleeding were: duodenal ulcer in 388 (27.71%), varices in 262 (18.71%), gastric ulcer in 176 (12.57%), gastritis in 174 (12.43%), esophagitis in 93 (66.4%), Mallory-Weiss syndrome in 72 (5.14%). The cause was undetermined or incorrect in 98 (7%). Esophagoscopy was the first type of technique used to diagnose 372 (26.6%) of the patients; gastroscopy in 462 (33.0%) and roentgenography in 468 (33.4%). Many of the patients were known to have a potentially bleeding lesion when the hemorrhage began. Serious error might have been made if the current bleeding had been ascribed to the known lesion since 40% of the bleeding was from some other lesion. During the diagnostic procedures potentially bleeding lesions were discovered in 711 (50.9%) of the patients. Emergency surgical treatment was required by 225 (16.1%). Erosive esophagitis and erosive gastritis caused 7% and 12% of the hemorrhages, resp. with death rates 3% and 9%, resp. Overall mortality was 7.9%.

**7994 USE OF THE GT-5 GASTROCAMERA IN THE STUDY OF EXPERIMENTALLY INDUCED GASTRIC ULCERS IN DOGS.** *(E.)* Sum, P. T. (Hotel Dieu Hosp., Kingston, Ontario, Canada) and I. T. Beck. *Canad Med Ass J* 111(2):67-69, 1969.

The effectiveness of the GT-5 gastrocamera was studied in 9 healthy dogs in which ulcers were experimentally induced by electric thermocautery. Ulcers induced at the level just proximal to the antrum were best seen on the anterior wall, the greater curvature and the lesser curvature, and at the level of the lower part of the body of the stomach. The posterior wall was not seen at either level because the camera was too close even when the stomach was fully inflated. Thermal ulcers healed within 15 to 19 days, leaving a small contracted scar. Antacid gel coating on the gastric/mucosa occurred in the most dependent part of the stomach (the lower body and the antrum). No preferential coating of the ulcers was seen.

**7995 EPINEPHRINE EFFECT IN ANGIOGRAPHY OF COLONIC CARCINOMA. AN INCONSISTENT AID IN DIAGNOSIS.** *(E.)* Miller, W. J. (Wayne County Gen. Hosp., Eloise, Mich.), S. R. Reuter and H. C. Redman. *Invest Radiol* 4(4):246-251, 1969.

In 16 patients with carcinoma of the colon, mesenteric angiography was performed before and after intra-arterial injection of epinephrine (6-15 μg in the superior mesenteric artery or from 6-10 μg in the inferior mesenteric artery). In this group of patients, epinephrine was of little value in the angiographic diagnosis of the carcinoma. It aided in the diagnosis in 6 patients, detracted in 4, and made no difference to the diagnosis in 6. In all patients, the tumor vessels were less well-filled in the postepinephrine study than before epinephrine. In 3 patients, vasoconstriction following epinephrine prevented filling of the tumor vessels. The only potential use for epinephrine was observed in the 6 patients with much inflammation accompanying the carcinoma. In these patients a marked decrease in the opacification of the inflammatory mass surrounding the tumor made the tumor vessels and infiltration seem relatively more apparent.

**7996 A METHOD PERMITTING PROLONGED AND REPEATED STUDIES OF RAT'S GASTRIC SECRETION.** *(E.)* Kowalewski, K. (Surg. Med. Res. Inst., U. Alberta, Canada) and G. Chmura. *Arch Int Physiol* 77(1): 10-16, 1969.

Chronic gastric fistulae were produced in male Wistar rats and a miniature stainless steel cannula implanted in the anterior wall of the lumen. A plaque of broad mesh nylon was applied on the cannula and positioned, during the operation, between the exterior wall of the stomach and the interior wall of the abdomen. (This nylon plaque promotes connective tissue growth and assures tightness of the cannula.) At the same operation, a polyethylene tube was implanted in the vena cava or the aorta. Rats bearing these cannulas survive for several months without evidence of health impairment. Repeated collections of gastric juice or blood are easily performed and repeated intravascular administration of gastric secretory stimulants is possible. To illustrate the usefulness of this procedure, 18 rats bearing gastric fistulae and intravascular catheters were infused 3 times, for 24 hr, with saline or histamine in saline, and their gastric juices collected. Adequate response to histamine was observed. A remarkable absence of fatigue of the gastric mucosa was also evident.

**7997 GASTROESOPHAGEAL TRANSMURAL POTENTIAL DIFFERENCE MEASURED BY A NEW CONSTANT INFUSION METHOD. THE EFFECT OF SKIN SCARIFICATION ON THIS POTENTIAL DIFFERENCE.** *(E.)* Hernandez, N. A. (Hotel Dieu Hosp., Kingston, Canada) and I. T. Beck. *Amer J Dig Dis* 14(3):206-216, 1969.

A reversal from negative gastric to positive esophageal transmural electrical potential difference can be recorded and has been correlated with histological transition from gastric to esophageal mucosa with the implication that the mucosal esophagogastric junction area can be thus localized. The usual method involves concentrated potassium chloride in the exploring electrolyte bridge with the electrolyte held in polyethylene tubing in a solution of agar to avoid leakage. Unscarified skin is used as a reference point. This technique has several disadvantages so a polyvinyl tube through which Ringer's solution was infused at a constant speed of 0.382 ml/min was used as the exploring electrolyte bridge and subepidermal tissue as a reference. Details are given in schematic drawings. Investigations were carried out on 13 normal volunteers without gastrointestinal symptoms who had received normal barium meals. The exploring probe was less traumatic without potassium chloride and simultaneous potential difference and intraluminal pressure recordings (using the constant infusion technique) could be done with ease. Superficial skin sacrification excluded certain artifacts and variations due to changes of skin potential.

**7998 $^{113m}$In-LABELED COMPOUND FOR LIVER AND SPLEEN STUDIES.** *(E.)* Colombetti, L. G. (Stanford Sch. Med., Palo Alto, Calif.), D. A. Goodwin and R. Hermanson. *J Nucl Med* 10(9):597-602, 1969.

A method of preparation of $^{113m}$In-labeled particles for combined liver and spleen studies is described. The splenic uptake of $^{113m}$In-colloid could be increased by increasing the particle size by adding iron as carrier. The method used to prepare these Fe-$^{113m}$In particles for liver and spleen studies proved to be simple, rapid and clinically useful in over 400 patients. Excellen quality scintiphotographs and scintiscans were obtained with about 300,000 dots/picture in about 1 min with 1.5 mCi. It was possible to visualize the liver and spleen in all patients studie with the exception of 2 who had undergone splenectomy. Because of the frequent association of hepatic and splenic diseases, it is an advantage to examine both organs at the same time. Because of the physical properties of $^{113m}$In, mC doses can be given and this results in larger counting rates, more rapid scans and greater diagnostic accuracy.

**7999 STUDIES ON THE METABOLISM OF $^{75}$Se-L-SELENOCYSTINE AND $^{75}$Se-DLmeso-SELENO CYSTINE WITH PARTICULAR REFERENCE TO THEIR USE AS PANCREATIC SCANNING AGENTS.** *(E.)* Melmed, R. N. (Royal Free Hosp., London, England), J. E. Agnew and I. A. D. Bouchier. *J Nucl Med* 10(9):575-580, 1969.

$^{75}$Se-L- and $^{75}$Se-DLmeso-selenocystine were compared with $^{75}$Se-L-selenomethionine as the agent for pancreatic scanning using New Zealand rabbits and 3 human volunteers. Although selenocystine has a shorter half-life (25 vs 35 days), the problem of renal overlap is likely to discourage its use. From whole-body retention studies and abdominal scans in rabbits it appears that tissue use of the natural L-configuration of selenocystine is greater than that of the DLmeso form. Because of the larger fraction of injected DLmeso-selenocystine lost in the urine, it is likely that renal tubular transport is also influenced by the configuration of 1 compound. Selenocystine injected by a peripheral vein behaves in a similar way to cystine in that a relatively large proportion of the dose is rapidly cleared and excreted by the kidney in rabbits and in man.

**8000 ANGIOGRAPHY OF THE GASTROINTESTINAL TRACT: RESULTS AND EXPERIENCE.** *(E.)* Font, R. G. (Tulane U., New Orleans, La.), D. G. Ostrolenk, W. Udayachalerm, R. D. Sparks and S. Gammill. *Amer J Gastroent* 51(6):477-492, 1969.

Forty adult patients with suspected liver, pancreatic, gastrointestinal and miscellaneous diseases had percutaneous femoral arterial catheterizations of the celiac or mesenteric vessels. Angioconray was injected and multiple X-ray views were taken over 24 sec intervals to include arterial, capillary and venous phases. Abdominal angiography was helpful in defining the cause of liver disease in 11 of 14 patients. Nine of 16 patients with suspected pancreatic disease had normal arteriography and 3 of 6 patients with abnormalities had pancreatitis (clinical). Angiography was found to be accurate in all four miscellaneous abdominal conditions, while proving helpful in 3 of 5 patients with suspected gastrointestinal disease.

**8001 OPERATIVE CHOLANGIOGRAPHY: 1000 CASES.** *(E.)* Schulenburg, C. A. R. (U. Pretoria Med. Sch., S. Africa). *Surgery* 65(5):723-739, 1969.

Diagnostic procedures were performed in 825 patients for primary benign biliary tract disease, in 71 for postcholecystectomy syndrome, in 8 for benign strictures (in this group there were 6 failures), in 32 for miscellaneous conditions (with 1 failure), and in 54 for malignancy. The most obvious use of operative cholangiography is in the detection of stones in the bile ducts. Even if the stone can be palpated, cholangiography should still be performed for it may show more stones in the extrahepatic as well as in the intrahepatic bile ducts. There were 38 (4.2%) instances of stones not palpable but observed on X-ray, 51 (5.6%) with no history of jaundice but stones appeared on X-ray, 50 (5.5%) with a history of jaundice but a picture of an undilated, and in many an extremely narrow, common bile duct and hepatic ducts so no exploration was carried out, and 11 (1.2%) with no stones palpable, no history of jaundice, common duct not dilated, but stones shown on X-ray. The common bile duct was explored in 286 cases: 12 (4.2%) were false negatives, 12 (4.2%) were false positives, and 4 (1.4%) had residual stones on postoperative cholangiography. These were missed at control operative cholangiography probably because of excessive dilution of the dye by saline in the ducts or because of overfilling. Anatomical variations from the normal in a significant degree were found in a total of 203 cases (21.9%).

**8002 COUNT RATE ANALYSIS AS AN ADJUNCT TO THE $^{75}$SE-SELENOMETHIONINE PANCREAS SCAN.** *(E.)* Agnew, J. E. (Royal Free Hosp., London, England), D. M. McCarthy, R. N. Melmed and I. A. D. Bouchier. *Brit J Radiol* 45(502):762-769, 1969.

Direct measurements were made of the count rate over the principal areas of isotope uptake seen in 200 $^{75}$Se-selenomethionine pancreas scans. An analysis is presented of the results from 144 patients whose diagnosis could be clearly established and in whom at least the head of the pancreas was not overlapped by the liver. These patients were grouped in 4 categories–control patients with no clinical evidence of pancreatic disease (60), carcinoma (24), pancreatitis (45) and "pancreatic insufficiency" due to diabetes or vagotomy (15). The majority of the abnormal patients gave pancreatic count rates within the wide normal range, and taking the ratio of pancreatic to hepatic count rates had little effect on the discrimination between normal and abnormal uptake. Sources of error in this type of study are discussed and it appears that count rate analysis –although of some value in confirming the visual assessment made of a scan–is unlikely to be of great value in differentiating abnormal from normal pancreatic uptake of $^{75}$Se-selenomethionine.

**8003 GASTROSCOPY COMBINED WITH INTRAGASTRIC PHOTOGRAPHY.** *(E.)* Gibbs, D. D. (Good Hope Gen. Hosp., Sutton Coldfield, England) and D. J. Parry. *Postgrad Med J* 45(527):577-582, 1969.

One hundred and eighty-four examinations using the Olympus GTF fibrescope and intragastric camera were made in 157 patients: 8 were failures and 176 were successful. The instrument was usually easy to introduce into the stomach and examinations were well tolerated. The youngest patient examined was aged 16 yr and the oldest 86. Fibroscopy in the elderly seldom presented difficulties. This model (GTF) was particularly suited to examination of the mid-stomach and antrum, the view often extending to the pylorus. The range proximal to the angulus on the lesser curve and posterior wall was often limited. Intragastric photographs of high quality could be taken; they increased the value and the interest of examinations. Pictures, taken at intervals, provided evidence of alterations in the appearances of gastric lesions. Gastric endoscopy is complementary to radiological examination of the stomach. Its use often increases diagnostic accuracy and understanding of gastric diseases. Within the limits of design of a particular instrument, fibreoptic apparatus renders the procedure simple and efficient.

**8004 THE STEAK AND BARIUM MEAL. A METHOD FOR EVALUATING GASTRIC EMPTYING AFTER PARTIAL GASTRECTOMY.** *(E.)* Stordy, S. N. (Shaughnessy Hosp., Vancouver, Canada), J. H. Greig and A. Bogoch. *Amer J Dig Dis* 14(7):463-469, 1969.

The rate of emptying of the gastric remnant after partial gastrectomy has been evaluated in 67 males (35-81 yr with 1-29 yr since operation) by means of a meal of beefsteak and barium, and serial, hourly X-rays. Sixteen of the patients had retention after 4 hr, and 8 of these had symptoms: early satiety, anorexia, nausea, vomiting, pain, weight loss, possibly related to gastric retention. The use of steak and barium may be a useful method of determining gastric emptying; also, gastric retention in the postgastrectomy state may be the cause of symptoms.

### 8005 DEMONSTRATION OF ESOPHAGITIS BY ACID BARIUM SWALLOW. CORRELATION WITH ESOPHAGOSCOPY AND ESOPHAGEAL BIOPSY.

*(E.)* Mayer, A. (Norfolk, Va.) and J. H. Vansant. *Virginia Med Monthly* 96(7):390-391, 1969.

A series of 31 patients with clinical symptoms of esophagitis was evaluated using the acid barium swallow technique and esophagoscopy. The acid barium swallow revealed evidence of esophagitis in 25 (80%) of the group. Three patients in whom advanced esophageal obstruction prevented reflux of gastric secretions had no peristaltic changes. Only 3 patients (10%) had a false negative result with no other evidence of major esophageal disease except a hiatal hernia. Some degree of esophagitis was visualized at endoscopy in all 31. Esophagitis was confirmed by biopsy in 29 of the 31 patients.

### 8006 FALSE POSITIVE LIVER SCANS CAUSED BY DISEASE PROCESSES IN ADJACENT ORGANS AND STRUCTURES.

*(E.)* Freeman, L. M. (Albert Einstein Coll. Med., Bronx, N. Y.), C. H. Meng, P. M. Johnson, R. G. Bernstein and M. A. Bosniak. *Brit J Radiol* 42(501):651-656, 1969.

The varying factors which result in false positive liver scans are reviewed. Enlarged gallbladders, kidney cysts and tumours, splenic enlargements, pancreatic lesions, dilated bile ducts and subdiaphragmatic fluid are examples of extrahepatic disease processes that can simulate intrahepatic defects. When doubt exists as to the hepatic scan a careful evaluation of the clinical and laboratory findings, as well as the use of complementary radiographic techniques such as selective angiography, can help elucidate the problem.

### 8007 ISOTOPIC EXPLORATION OF THE PANCREAS BY SELENOMETHIONINE. 60 CASES.

*(Fr.)* Swyngedauw, J. (Fac. Med., Lille, France), A. Tacquet, P. Foissac-Gegoux and M. Huart. *Rev Med Liege* 23(Suppl. 1): 95-106, 1968.

In 20 subjects with no pancreatic disease, including 2 cases of lithiasis or viral hepatitis, pancreatic scintillation scanning in all instances showed a normal pancreas: in 11 cases the classical form, in 3 the horseshoe form, and 1 each of the sigmoid, vertical and globular form. In 2 subjects with acute pancreatitis isotope scanning performed on the 15th and 10th day after recovery proved normal. In 11 cases of chronic pancreatitis the scan showed significant anomalies in the pancreatic fixation of selenomethionine. In 6 patients with cystic pancreatitis, scanning showed an abnormal fixation in 4 (1 surgically confirmed, and 3 diagnosed by clinical or radiological findings). In 6 diabetic forms, 4 showed reduced fixation of selenomethionine.

### 8008 VALUE OF ENZYME DETERMINATIONS IN THE DIAGNOSIS AND PROGNOSIS OF SOME GASTROINTESTINAL DISORDERS.

*(It.)* Nuti, M. (Dept. Clin. Trop. Dis., U. Rome, Italy) and V. Servino. *Epatologia* 14(5):423-430, 1968.

In the differential diagnosis of gastrointestinal syndromes, the average increases of the most significant enzyme activities are reported. In hepatocellular jaundice serum transaminase levels usually reached values (400-500 U) 10 times normal; the quinine oxidase values were usually 30 U, 6 times normal; aldolase increased 3 times (20 U). In cholestatic jaundice the hepatocellular enzymes were not significantly increased, except SGOT; alkaline phosphatase and leucine amino peptidase values were higher than 30 U and 700 U, resp. In relation to the diagnosis and prognosis of hepatic cirrhosis, the enzymatic picture shows remarkable alterations only during a hepatolithic crisis, while during hepatic coma the enzyme activity does not increase significantly. Periodic determinations of enzyme activity during the course of the disease are more useful. Study of the involvement of the pancreas during viral hepatitis (60 patients) by determinations of blood arginine-esopeptidase (AEP), an enzyme present in the pancreatic parenchyma, showed an increase of AEP in 66% (increase of 20-30 U in 10 cases, of 30-52 U in 30 cases). The determinations of serum amylase at the same time showed a total dissociation between the 2 enzymes, with a higher sensitivity of AEP for pancreatic involvement in hepatic damage.

### 8009 VALUE OF LYMPHOGRAPHY IN THE EARLY DIAGNOSIS OF RETROPERITONEAL ADENOPATHIES (450 CASES).

*(Fr.)* Lamarque, J. L. (St. Eloi Clin., Montpellier, France), J. F. Ginestié and C. Combes. *Ann Radiol (Paris)* 11(11/12):888-895, 1968.

Lymphography was carried out in 369 known malignant hemopathies, of which 214 were Hodgkin's disease (43 cases of Stage I, 45 of II, 86 of III, 40 of IV, and lymphography was positive in 20, 26, 80 and 40 cases, resp.). In 48 cases of lymphosarcoma lymphography was positive in 35; in 41 cases of reticulosarcoma it was positive in 30; and in 11 mixed sarcoma cases it was positive in all. In 49 cases of lymphoid leukemia (3 cases of Brill-Symmers disease, and 3 of Waldenstrom's disease) it was always positive. In 77 suspected malignant hemopathies, lymphography showed the aspect of Hodgkin's disease 12 times, 10 cases were histologically confirmed, and 2 by evolution or biopsy. In 11 cases lymphograp showed lymphosarcoma or reticulosarcoma, confirmed by clinical and radiological diagnosis. Among 19 cases of doubtful lymphography, 10 were histologically verified, 8 were normal lymph nodes or adenitis, 1 was a fibrosarcoma, and 1, Hodgkin's disease.

### 8010 THE USE OF THERMOGRAPHY IN THE EXPLORATION OF ABDOMINAL TUMORS.

*(Fr.)* Gros, C. M. (Radiol. Svc. C.H.U., Strasbourg, France), C. Vrousos, P. Bourjat and J. L. Mugel. *Ann Radiol (Paris)* 11(11/12):773-776, 1968.

The results of more than 100 radio-thermo-clinical comparisons and the value of thermography in the diagnosis of abdominal tumors are discussed. The thermographic anomalies observed were of 3 types: 1) the hypothermia of variable extension, homogeny and intensity, persistent after cooling, and corresponding to the anatomical lesions; 2) the more difficult to demonstrate hypothermia, and visible in the first thermography 3) the modifications of the normal thermic repartition. A center of hypothermia continuous and persistent after cooling was always a sign of an intra-abdominal lesion. The abdominal thermography could not determine either the nature or the exact topography of the lesions. It is concluded that such method is limited in the diagnosis of abdominal tumors.

## DIAGNOSTIC PROCEDURES

8011 CONSIDERATIONS OF SOME CASES OF ABDOMINAL AORTOGRAPHY. *(It.)* Trenta, A. (Inst. Radiol., U. Bologna, Italy), S. Moretti, M. Mattii and L. Babini. *Nunt Radiol* 23(11):1419-1446, 1967.

8012 FURTHER CONSIDERATIONS ON THE HOYT-MORRISON TEST IN VIRAL HEPATITIS IN INFANCY. *(It.)* Moreno, A. (Maggiore Hosp., Milan, Italy), L. Pagliano and C. Radice. *G Mal Infett* 19(6):367-368, 1967.

8013 QUANTITATIVE ANALYSIS OF THE KINETICS OF $^{131}$I-ROSE BENGAL. *(It.)* Mombelli, L. (Inst. Nuclear Med., U. Milan, Italy), G. L. Tarolo, L. Conte and L. Colombo. *Radiol Med (Torino)* 53(6):562-573, 1967.

8014 TELEDELTOS SCANNING OF THE LIVER IN NORMALS AND BILHARZIAL HEPATO-SPLENOMEGALY USING GOLD-198. *(E.)* Fayez, M. A. (Isotopic Ctr., Cairo U., Egypt), M. Moustafa, A. M. El-Saadani and M. T. El-Gengehy. *J Egypt Med Ass* 51(9):737-749, 1968.

8015 MATHEMATIC ANALYSIS OF GLUCAGONE HYPERGLYCEMIA AS A LIVER FUNCTION TEST IN THE ELDERLY. *(It.)* Passeri, M. (Inst. Semeoitic Med., U. Parma, Italy), M. Tonelli, G. Molinis and G. L. Marelli. *G Geront* 16(12):1339-1353, 1968.

8016 BSP CLEARANCE AS A LIVER FUNCTION TEST. *(Ser.)* Matušan, J. (Gen. Hosp., Split, Yugoslavia) and M. Dujmović. *Lijecn Vjesn* 89(7):525-532, 1967.

8017 A FALSE GASTRIC DIVERTICULUM AS A CAUSE OF UNSUCCESSFUL ORAL CHOLECYSTOGRAPHY. *(Pol.)* Garlicki, H. (Surg. Hosp., Nisk, Poland), H. Milik and J. Wiśniewski. *Pol Tyg Lek* 23(43): 1653-1654, 1968.

8018 SULFOBROMOPHTHALEIN RETENTION IN SERUM IN DIFFERENT PERIODS OF ACTIVITY IN CHRONIC HEPATITIS AND CIRRHOSIS OF THE LIVER. *(Cz.)* Vido, I. (Comenius U., Bratislava, Czechoslovakia) and E. Wildhirt. *Cesk Gastroent Vyz* 22(7): 433-437, 1968.

8019 THE VALUE OF CHEMICAL TESTS FOR OCCULT BLOOD IN FECES. *(E.)* Milverton, E. J. (Dept. Surg., U. Sydney, Australia), C. K. Hambly, F. O. Stephens and E. van der Ven. *Med J Aust* 2(13):681-683, 1967.

8020 A STUDY OF THE pH OF THE GASTROINTESTINAL TRACT CONTENTS BY A RADIOTELEMETRIC METHOD. *(Rus.)* Dedlovskaia, V. I. (Sverdlovsk Med. Inst., USSR). *Biull Eksp Biol Med* 66(11): 121-123, 1968.

8021 GASTROCAMERA PHOTOGRAPHY. *(E.)* Schuman, B. M. (Henry Ford Hosp., Detroit, Mich.). *GP* 40(2):89-93, 1969.

8022 RECENT PROGRESS IN GASTROENTEROLOGICAL DIAGNOSIS. *(Rev.)(Fin.)* Tarpila, S. (U. Helsinki, Finland). *Duodecim* 85(8):511-517, 1969.

8023 WHOLE-BODY SCANNING OF $^{59}$Fe FOR EVALUATING BODY DISTRIBUTION OF ERYTHROPOIETIC MARROW, SPLENIC SEQUESTRATION OF RED CELLS AND HEPATIC DEPOSITION OF IRON. *(E.)* Ronai, P. (Lawrence Radiation Lab., U. California, Berkeley), H. S. Winchell, H. O. Anger and J. H. Lawrence. *J Nucl Med* 10(7):469-474, 1969.

8024 RADIOLOGY OF THE GASTROINTESTINAL TRACT. *(E.)* Gleeson, J. (Westminster Hosp., London, England) and F. Starer. *J Abdom Surg* 11(6):131-137, 1969.

8025 ASSESSMENT OF SCANNING TECHNIQUES IN ABDOMINAL DISEASE. *(E.)* Hanham, I. W. F. (Westminster Hosp., London, England). *J Abdom Surg* 11(6):127-130, 1969.

8026 PERITONEOSCOPY. *(Fin.)* Salmi, H. J. (U. Helsinki, Finland), J. Jussila and M. Siurala. *Duodecim* 85(8):518-523, 1969.

8027 DIAGNOSIS OF HEMOLYTIC DISEASE. *(Rev.)(Fin.)* Vuopio, P. (U. Helsinki, Finland). *Duodecim* 85(8):480-487, 1969.

8028 A FLUOROMETRIC MICROMETHOD FOR LIVER VITAMIN A. *(E.)* Hansen, L. G. (U. Minnesota Med. Sch., Minneapolis) and W. J. Warwick. *Amer J Clin Path* 51(5):667-668, 1969.

8029 STUDIES ON THE SENSITIVITY OF INDIRECT IMMUNOFLUORESCENCE TESTS FOR THE RAPID IDENTIFICATION OF ENTEROPATHOGENIC *ESCHIERICHIA COLI* IN EXPERIMENTALLY INFECTED FECES. *(Ger.)* Nestorescu, N. ("Dr. I. Cantacuzino" Inst., Bucharest, Romania), M. Popovici, C. Georgesco and A. Popesco. *Arch Roum Path Exp Microbiol* 26(2):369-374, 1967.

8030 A STUDY OF THE RELATIONSHIP BETWEEN THE SEROLOGICAL SALMONELLA TYPES ISOLATED FROM HUMANS AND FROM FOODSTUFFS. *(Fr.)* Popovici, M. ("Dr. I. Cantacuzino" Inst., Bucharest, Romania), L. Szégli, L. Soare, M. Neguţ, V. Raicev, G. Ionesco, C. Ienişteа and C. Ionesco. *Arch Roum Path Exp Microbiol* 26(2):345-352, 1967.

8031 THE IMPORTANCE OF STUDYING PANCREATIC ENZYMES IN ACUTE DISEASES WHICH REQUIRE SURGERY OF THE ABDOMEN. *(Rus.)* Rybakov, S. I. (Kiev Med. Inst., USSR). *Klin Khir (Kiev)* (11):33-36, 1967.

8032 PREOPERATIVE ROENTGENOGRAPHY IN ACUTE ABDOMINAL CONDITIONS. *(E.)* Ochsner, S. E. (Ochsner Clin., New Orleans, La.). *J Louisiana Med Soc* 119(10):408-414, 1967.

## DIAGNOSTIC PROCEDURES

8033 SGAMBATI'S TEST IN THE DIAGNOSIS OF PERITONITIS. ACCORDING TO 400 OBSERVATIONS. *(Sp.)* Severino, D. (San Jose Hosp., Monte Grande, Argentina), S. Geffner, A. Spiraquis and J. Lusarreta. *Rev Argent Cir* 12(4):173-174, 1967.

8034 RECTAL MUCOSA BIOPSY IN THE DIAGNOSIS OF INTESTINAL BILHARZIASIS. *(Fr.)* Debray, C. (Bichat Hosp., Paris, France), J. Leymarios and C. Marche. *Sem Hop (Paris)* 43(53/8):3406-3411, 1967.

8035 CHOLANGIOGRAPHY BY MASSIVE PERFUSION. *(Fr.)* Wangermez, A. (Bordeaux, France) and J. Wangermez. *J Radiol Electr* 48(12):827-832, 1967.

8036 MORPHOLOGICAL METHODS IN THE STUDY OF HEPATIC CIRCULATION: SELECTIVE ARTERIOGRAPHY, PORTOGRAPHY AND CAVOGRAPHY. *(Fr.)* Hernandez, C. (Paris, France) and M. Cachin. *Rev Int Hepat* 17(8):719-752, 1967.

8037 LAPAROSCOPIC UMBILICAL PORTOGRAPHY. *(Fr.)* Kapandji, M. (Paris, France). *Rev Int Hepat* 17(8):769-794, 1967.

8038 TRANS-UMBILICAL PORTAL CATHETERIZATION (A STUDY OF 120 OMPHALO-PORTOGRAPHIES). *(Fr.)* Lavoie, P. (Montreal, Canada), A. Legare and A. Viallet. *Rev Int Hepat* 17(8):753-768, 1967.

8039 IMMUNOFLUORESCENT SERODIAGNOSIS OF INTESTINAL COLI INFECTION. *(Rus.)* Krushchova, V. A. (Leningrad Pediat. Med. Inst., USSR) and G. A. Timofeieva. *Vop Okhr Materin Dets* 12(8):50-53, 1967.

8040 COLOR PHOTOGRAPHY OF THE LARGE INTESTINE. *(E.)* Perttala, Y. (Meilahti Hosp., U. Helsinki, Finland), P. Peltokallio and U. Svinhufvud. *Arch Surg (Chicago)* 97(1):128-132, 1968.

8041 THE SIGNIFICANCE OF RADIOLOGICAL STUDY TECHNIQUES AND METHODS IN THE DIAGNOSIS OF GASTROINTESTINAL TRACT CANCER. *(Rus.)* Fanardzhian, V. A. and G. A. Daniielian. *Zh Eksp Klin Med* 8(6):5-8, 1968.

8042 SLOW INTRAVENOUS INFUSION CHOLECYSTO-CHOLANGIOGRAPHY. ITS ADVANTAGES OVER OTHER METHODS. *(It.)* Ottolenghi, G. (Inst. Radiol., U. Turin, Italy). *Minerva Radiol* 13(1/2): 13-31, 1968.

8043 LIVER PHLEBOGRAPHY. *(It.)* Bossi, R. (Predabissi Hosp., Milan, Italy). *Minerva Radiol* 13(1/2):108-112, 1968.

8044 FRACTIONAL DIURESIS, A USEFUL LIVER TEST. *(Rum.)* Dimitriu, S. (Med. Pharm. Inst., Iasi, Romania) and E. Besleagă. *Rev Med Chir* 72(4):879-884, 1968.

8045 PERCUTANEOUS TRANSHEPATIC CHOLECYSTOCHOLANGIOGRAPHY. *(Jap.)* Hasegawa, M. (Med. Sch. Chiba U., Japan). *Nippon Acta Radiol* 28(1):39-57, 1968.

8046 PROCTOSIGMOIDOSCOPY. *(E.)* McHardy, G. (Louisiana State U. Sch. Med., New Orleans), C. H. Brown and A. J. Kauvar. *GP* 37(6):98-111, 1968.

8047 THE APPLICATION OF POLISH-PRODUCED LATEX IN THE DIAGNOSIS OF HEPATIC DISEASES. *(Pol.)* Żakowska-Wachelko, B. (Munic. Hosp. No. 7, Katowice, Poland), L. Szczagiel and W. Szczagiel. *Przegl Lek* 24(7):610-611, 1968.

8048 NEW TRENDS IN X-RAY DIAGNOSTIC PROCEDURES OF THE DIGESTIVE TRACT. *(Cz.)* Pirk, F. (Res. Inst. Human Nutrit., Prague, Czechoslovakia). *Cas Lek Ces* 107(2):33-36, 1968.

8049 LAPAROSCOPY IN ABDOMINAL TRAUMATOLOGY. *(Fr.)* Debray, C. (Bichat Hosp., Paris, France), G. Debray, A. Pironneau, J. A. Paolaggi, E. Papi and R. Herzaft. *Arch Franc Mal App Digestif* 57(12): 971-984, 1968.

8050 LYMPHOGRAPHY AS A MEANS OF DETECTING LYMPHATIC DIFFUSION OF RECTAL CARCINOMA. *(It.)* Ottaviani, O. (S. Maria Sopra Ponti Hosp., Arezzo, Italy), E. R. Bonfigli, E. Lucacci, P. Perfetti and P. de Gennaro. *Acta Chir Ital* 24(3):329-346, 1968.

8051 SOME TECHNICAL ASPECTS IN PANCREAS SCINTIGRAPHY. *(Fr.)* Gros, C. M. (C. H. U. Strasbourg, France), R. Vergnes, J. Soutter and D. Chateau. *Ann Radiol (Paris)* 11(11/12):847-849, 1968.

8052 VENOUS INTRAVASATION OF THE BARIUM ENEMA. REPORT OF A CASE. *(E.)* Frecker, B. E. (Royal Prince Alfred Hosp., Sydney, Australia). *Aust Radiol* 12(2):129-132, 1968.

8053 A GOOD INEXPENSIVE DISPOSABLE BARIUM ENEMA BAG. *(E.)* Kalokerinos, J. (Newcastle, Australia). *Aust Radiol* 12(2):133, 1968.

8054 WHY DON'T GASTROENTEROLOGISTS USE ESOPHAGOSCOPY? [EDITORIAL] *(Sp.)* Mazpule, L. G. (Clin. Conception, Madrid, Spain). *Rev Esp Enferm Appar Dig* 28(5):669-674, 1969.

8055 ROENTGENOPHOTOMETRIC METHOD OF DIAGNOSING CALCIUM DEFICIENCY IN CHRONIC ENTEROCOLITIS. *(Rus.)* Lukash, L. K. (Inst. Nutrit., Moscow, USSR), L. P. Miagkova and N. S. Taits. *Sovet Med* 32(6):96-99, 1969.

8056 SPOT GASTROBIOPSY AND CYTOLOGICAL STUDIES OF STOMACH DISORDERS. *(Rus.)* Sokolov, L. K. (All-Union Res. Inst. Gastroent., Moscow, USSR), S. I. Rapoport and G. V. Tsodikov. *Klin Med (Moskva)* 47(4):27-33, 1969.

## DIAGNOSTIC PROCEDURES

8057 **PERCUTANEOUS CHOLANGIOGRAPHY.** *(Rus.)* Sitenko, V. M. (S. M. Kirov Milit. Med. Acad., Leningrad, USSR), A. I. Nechai and V. M. Trofimov. *Vestn Khir Grekov* 102(2):8-11, 1969.

8058 **CLINICAL EVALUATION OF TRANSPARIETAL CHOLANGIOGRAPHY.** *(Rus.)* Krakovskii, A. I. (Kemerovo Med. Inst., USSR) and R. A. Nikhinson. *Vestn Khir Grekov* 102(2):11-17, 1969.

8059 **LYMPHOGRAPHY AND THE DIGESTIVE TRACT.** *(Sp.)* Barcellos Ferreira, A. (Med. Fac., U. Federal Rio Grande Sul, Porto Allegre, Brazil) and O. Dick. *Prensa Med Argent* 56(5):199-204, 1969.

8060 **STUDY OF STIMULATED AND BASAL GASTRIC JUICE SECRETION. THE VALUE OF VARIOUS STIMULANTS IN THE DIAGNOSIS OF STOMACH DISEASES.** *(Rum.)* Goldenberg, N. (Inst. Med. Pharm., Iasi, Romania), I. Dumitriu, A. Dănăită, O. Capşa and V. Ababei. *Rev Med Chir* 72(4):841-847, 1968.

8061 **GASTROINTESTINAL HORMONES AND THEIR DIAGNOSTIC SIGNIFICANCE.** *(Ger.)* Halter, F. (U. Med. Clin., Bern, Switzerland). *Schweiz Med Wschr* 99(7):238-243, 1969.

See also: 7785,7820,8100,8102,8109,8110,8114,8132,8135,8139,8150,8168,8173,8179,8210,8264,8312,8363,8375,8396, 8415,8446,8464,8474,8478,8484,8487,8520,8529,8541,8561,8579,8592,8602,8604,8621,8623,8632,8638,8654, 8658,8665,8671,8673,8676,8691,8721,8770,8787,8792,8793,8794,8826,8828,8855,8858,8860,8862,8866,8882, 8883,8896,8952,8960,8982,8987,9002,9004,9012,9014,9019,9026

# GASTROINTESTINAL DISEASES

## ESOPHAGUS

8062 ESOPHAGEAL ATRESIA AND TRACHEO-ESOPHAGEAL FISTULA. 25 YEARS' EXPERIENCE AND CURRENT MANAGEMENT. *(E.)* Krishinger, G. L. (White Mem. Med. Ctr., Los Angeles, Calif.) and M. M. Woolley. *Calif Med* 111(3):165-168, 1969.

A retrospective review of 30 patients with esophageal atresia and tracheo-esophageal fistula seen over a 25-yr period is presented. Proximal esophageal atresia with distal tracheo-esophageal fistula occurred in 28 patients; proximal and distal esophageal atresia without fistula in 1 and proximal esophageal atresia with fistula and distal esophageal atresia without fistula in 1. Gastrostomy was performed in 19 patients (of whom 11 survived). In 7 patients who did receive gastrostomy, 1 survived. Following gastrostomy, upper pouch suction was instituted with the Replogle tube connected to constant suction. Extrapleural dissection was performed in 12 patients of whom 8 survived. In 14 patients with transpleural dissection, 4 survived. Additional surgical procedures included upper esophageal stretching and eventual esophago-esophagostomy in patients with proximal and distal esophageal atresia with or without proximal tracheo-esophageal fistula.

8063 PYLOROPLASTY IN THE MANAGEMENT OF SLIDING OESOPHAGEAL HIATUS HERNIA. *(E.)* Gunn, G. G. (Royal Postgrad. Med. Sch., London, England) and J. K. Miller. *Brit J Surg* 56(3):164-166, 1969.

The long-term results of 15 patients with sliding esophageal hiatus hernia treated by pyloroplasty were compared with a similar group treated by transthoracic repair. There were 5 males in each group; 10 females in the pyloroplasty group and 12 in the transthoracic repair group. The age ranges were 29-73 yr, average 55, and 6-69 yr average 47, resp. The interval between operation and review in months was 36-86, average 59 and 24-86, average 61, resp. The results of symptomatic follow-up for the pyloroplasty patients were 4 cured, 4 improved, and 7 failures. The results for those with transthoracic repair were 7 cured, 6 improved, and 4 failures. The findings suggest that pyloroplasty may have a place in the surgical management of hiatus hernia. In poor-risk patients, pyloroplasty may be carried out with some prospect of success. However, about half the patients required further surgery for persistent symptoms.

8064 EFFECT OF THORACIC DISPLACEMENT AND VAGOTOMY ON THE CANINE GASTRO-ESOPHAGEAL JUNCTIONAL ZONE. *(E.)* Lind, J. F. (Winnipeg Gen. Hosp., Canada), D. J. Cotton, R. Blanchard, J. S. Crispin and G. E. Dimopolos. *Gastroenterology* 56(6): 1078-1085, 1969.

The functional importance of paraesophageal structures and vagal innervation in maintaining gastroesophageal competence was studied in 8 dogs. Intraluminal pressures were recorded from the stomach, esophagus, and junctional zone, before and after surgical displacement of the zone into the thorax; vagotomy at the level of the junction; and replacement of the zone within the abdomen. The anatomical position of the junctional zone, and therefore, the paraesophageal structures, do not seem to contribute to the high pressure zone and are not important in maintaining competence. Division of the vagus nerves at the level of the gastroesophageal junction resulted in a decrease in resting sphincteric pressure and in the response to abdominal compression, allowing free reflux to occur. Afferent vagal impulses arising from below the diaphragm exert a controlling influence on the functional integrity of the gastroesophageal sphincter. Vagotomy at the level of the gastroesophageal junction creates a model of gastroesophageal incompetence proposed for the experimental study of reflux esophagitis.

8065 BLEEDING OESOPHAGEAL VARICES AS THE PRESENTING FEATURE IN PRIMARY BILIARY CIRRHOSIS. *(E.)* Zeegen, R. (St. Bartholomew's Hosp., London, England), A. G. Stansfeld, A. M. Dawson and A. H. Hunt. *Lancet* 2(7610):9-12, 1969.

A survey of the clinical features and liver microscopy of 250 patients who had undergone portal decompression for intrahepatic portal hypertension, showed 23 to have primary biliary cirrhosis, and 15 of these presented portal hypertension and bleeding from esophageal varices, while the remainder presented the typical features o f cholestasis. The first group consisted of 15 women with a mean age of 56 yr (range 44-66) and the second of 7 women and 1 man with a mean age of 52 (range 34-62). Hepatomegaly was present in all but 1 of both groups. Portal decompression in this atypical group prevented an early death from variceal hemorrhage but did not influence progression of the disease. At 5-yr follow-up 6 patients of 15 in group 1 were alive and 1 of group 2. The postoperative survival rate was 37% (7 of 19).

8066 ESOPHAGEAL ATRESIA. II. ANASTOMOTIC DISRUPTION FOLLOWING PRIMARY SURGICAL MANAGEMENT. *(E.)* Livaditis, A. (Karolinska Hosp., Stockholm, Sweden), L. Okmian and O. Eklof. *Scand J Thorac Cardiovasc Surg* 3(1):39-43, 1969.

Among 109 patients subjected to primary repair for esophageal atresia, 18 (16.5%) developed anastomotic disruption. In 10 the anastomosis was established under considerable tension but in 8 there was no undue tension. This complication occurred within the first week after operation; in 12 cases during the first 2 postoperative days. In 15 the occurrence of leak was suspected clinically. Radiological diagnosis proved more reliable, in some cases preceeding the change in clinical behavior. In 5 direct evidence of rupture was established after ingestion of water-soluble contrast medium. Treatment consisted in pleural drainage, gastrostomy for decompression, omission of oral feedings and administration of antibiotics in each case. In 2 patients secondary cervical esophagostomy and closure of the distal segment was performed. Ten patients died within a few days from pulmonary complications and sepsis and 2 died later from causes unrelated to anastomotic disruption. Of the 6 long-term survivors, 4 developed anastomotic strictures which were successfully treated by dilatations (3) or resection (1). The remaining 2 patients made an uneventful recovery.

## ESOPHAGUS

### 8067 LONG TERM RESULTS OF OPERATION FOR SLIDING ESOPHAGEAL HIATUS HERNIA.

*(E.)* Giffin, L. A. (Hartford Hosp., Conn.). *Conn Med* 33(9):577-579, 1969.

An analysis of the late results of 130 operations for sliding esophageal hiatus hernia showed that 22% of patients have recurrent symptoms from 14 months to 8 yr postoperatively. (The average period of follow-up was 44 months.) The preoperative symptoms were dysphagia in 91 (70%), heart burn in 115 (96%) and bleeding in 26 (20%). All the patients had not responded to medical treatment, but in 12 the primary indication for surgery was gastroduodenal peptic ulcer, and in another 12 disease of the biliary tract. In the remaining 106, peptic esophagitis was the indication for surgery. The crus closure was used in 18 and sub-hiatal fixation in 112. There was no statistically significant difference in results between operations which were done by the abdominal or by the thoracic approach. Although crus closure alone produced nearly as high a proportion of satisfactory results as did the procedure of crus closure plus some form of subhiatal fixation, our figures for crus closure alone are too few to be statistically significant. Neither technique seems to be adequate. The addition of bilateral vagotomy and the gastric emptying procedure did not alter the results of operation unless there was an associated peptic ulcer. On the basis of these poor results, the technique of operation should be changed to incorporate the principles of posterior fixation and maintenance of a length of intra-abdominal esophagus.

### 8068 USE OF CELESTIN TUBE FOR PALLIATION OF MALIGNANT OESOPHAGEAL OBSTRUCTION.

*(E.)* Provan, J. L. (U. Coll. Hosp. Med. Sch., London, England). *Thorax* 24(5):599-602, 1969.

Palliation of dysphagia due to malignant obstruction of the esophagus by passage of the Celestin tube was tried in 36 cases (16 primary carcinoma of the esophagus, 9 primary carcinoma of the stomach, 1 post-resection stricture, and 10 carcinoma of bronchus with metastases to the posterior mediastinal glands). Ten patients died within the 1st week after tube insertion and 21 were dead by 4 weeks. Although there was a high initial mortality, this was most marked when the tube was used to palliate dysphagia due to enlarged posterior mediastinal glands. Satisfactory palliation was obtained in all but 1 patient, and 4 survived more than 6 months in relatively good health. Tracheo-esophageal fistula (3 patients) responded particularly well to the use of the indwelling tube. Gastrointestinal bleeding (5) and wound complications (4) accounted for the main morbidity following the procedure.

### 8069 SELECTIVE MANAGEMENT OF HEMORRHAGE FROM GASTRO-ESOPHAGEAL VARICES.

*(E.)* Pearlman, D. M. (Albert Einstein Coll. Med., Bronx, N. Y.) and G. Duvemides. *Ann Surg* 170(1):142-148, 1969.

Forty-eight consecutive patients (38 men, 10 women, mean age 47 yr) with bleeding gastro-esophageal varices were treated by a plan of selective management which essentially involved: 1) an attempt at initial nonoperative treatment; 2) emergency variceal ligation if massive hemorrhage persisted; 3) emergency portacaval shunt if slow bleeding persisted or if hemorrhage recurred after initial nonoperative control; and 4) elective portacaval shunt on patients who survived bleeding episodes without an emergency shunt. Only 4 of the 48 patients were not alcoholics. The hospital mortality was 50%. Analysis of sub-groups suggests that initial nonoperative management is associated with a high failure rate in patients who require esophageal tamponade (only 5 of 25 survived) and with a prohibitive mortality in patients who are bleeding for the first time (8 of 23 survived). Emergency portacaval shunt may be the procedure of choice in this situation. Avoidance of emergency operation appears sage and may improve survival in those patients who have previously survived 1 or more bleeding episodes and who did not require esophageal tamponade for control of bleeding. Moderate improvement in the survival rate of patients with bleeding esophageal varices might be obtained by use of proposed treatment plan. Significant improvement appears to depend on improved methods of treating the underlying disease.

### 8070 CAUSE OF LEAKAGE AT THE SITE OF ANASTOMOSIS AFTER ESOPHAGOGASTRIC RESECTION FOR CARCINOMA.

*(E.)* Maillard, J. N. (Beaujon Hosp., Paris, France), B. Launois, P. de Lagausie, J. Lellouch and J. L. Lortat-Jacob. *Surg Gynec Obstet* 129(5): 1014-1018, 1969.

In 472 esophagogastric resections for carcinoma of the esophagus or of the cardial end of the stomach, the factors associated with anastomotic leakage have been analyzed. Carcinoma was in the middle third of the thoracic portion of the esophagus in 177; in the lower third in 157; and in the cardial end of the stomach in 138. Mean age was 59.5 yr. The site of the growth, the duration of the operation, and the technique of esophagogastric anastomosis are more important than the experience of the surgeon. The nutritional state of the patient is less important. The least favorable anastomotic site is the middle third of the esophagus. The presence of cancerous tissue at the suture line is undesirable, but it does not prevent the anastomosis from healing satisfactorily. Probably because they operate faster, experienced surgeons obtain better results. The best type of esophagogastric anastomosis is end-to-side with two layer closure. If patients in extreme old age, with profound anemia, or in an advanced state of cachexia are excluded, the risks do not increase in proportion to age, anemia, or malnutrition.

### 8071 COMBINED TREATMENT OF CANCER OF THE ESOPHAGUS.

*(E.)* Guernsey, J. M. (Stanford U. Sch. Med., Palo Alto, Calif.), R. L. S. Doggett III, G. R. Mason, S. Kohatsu and H. A. Oberhelman Jr. *Amer J Surg* 117(2):157-161, 1969.

Forty patients (27 males, 13 females), average age 61 yr were studied. Squamous carcinoma was present in 39 and adenocarcinoma of the midesophagus with the distal esophagus and the gastric fundus normal in 1. The distance between the uppermost margin of the tumor and the central incisors was 15-24 cm in 10 patients, 25-34 in 27, and 35-45 in 3. Therapy was planned to be mega-voltage radiotherapy followed by complete excision of the thoracic esophagus. Of the 40 patients, 38 completed radiotherapy, esophageal resection was attempted in 26, completed in 23, and 21 underwent esophageal replacement. There were 5 postoperative deaths and treatment was completed in 17. These 17 patients had a mean survival time of 16 months after surgery: 14 have died but 3 are alive and well 9, 36, and 62 months, resp., after resection. No patient with advanced primary disease or metastasis to the regional lymphatics benefited from the plan of treatment.

### 8072 CARCINOMA OF THE ESOPHAGUS IN INDIA.

*(E.)* Desai, P. B. (Tata Mem. Hosp., Bombay, India), E. J. Borges, V. G. Vohra and J. C. Paymaster. *Cancer* 23(4):979-989, 1969.

The incidence of esophagus cancer in Bombay is 14.4/100,000 for men and 11.0/100,000 for women. Finland has the next highest frequency: 5.4 men/100,000. The corresponding figures for the USA are 6 men and 1.1 women. Statistics are not available for India as a whole since there are no cancer registries for the entire country. Although malnutrition, avitaminosis, hypoproteinemia and iron-deficiency anemias as well as the various irritants taken by many of these patients may account for the high incidence. Numerous patients show no evidence of nutritional deficiency and have never smoked or taken any irritants. During 26 yr (1941-66) 7973 cases of esophagus cancer were seen at the Tata Memorial Hospital. The present study is of 1120 consecutive patients admitted during 1965-66. Of these 51% are in such an advanced state of the disease that no treatment is possible; 32% qualify for curative therapy and 17% for palliation. Of 100 esophageal resections the disease had extended through the mucosa and submucosa in 4%, had infiltrated the muscle coat and involved regional nodes in 23%, and had infiltrated the muscle coat so extensively in 73% that only a palliative resection was possible. The management of cancers of the upper third, the middle third, and the lower third is described. Results of surgery in 15 cases of cancer of the upper third of the esophagus showed that 8 were nonresectable, the postoperative mortality was 4 of 7 (57%) and that of 3 patients followed up 2 died in less than 6 months and 1 was alive for more than a yr then lost and now presumed dead. Cancer of the middle segment treated by surgery alone has had poor results: of 31 resected cases 22 (70%) died from recurrence and spread within 2 yr and the 3 yr survival rate was 20% (6 of 31). Radiotherapy alone in 205 cases showed that 21 (10%) were alive after 3 yr, and 19 (9%) lived for 5 yr and more. However, 138 (68%) were dead within the 1st yr. Radiotherapy and surgery have a complementary role in overall management. Mitomycin C has been tried in 27 patients: 14 had a subjective response, 4 an objective response, and 13 did not respond.

### 8073 ACHALASIA OESOPHAGI AND ASSOCIATED DISEASES.

*(E.)* Akuamoa, G. (Rigshospitalet, Copenhagen, Denmark). *Acta Chir Scand* 135(5):421-427, 1969.

An investigation was made on 101 patients (61 men, average age 38, and 40 women, average age 47) with achalasia esophagi. The most frequent symptoms were dysphagia 66%, rumination 46%, food stops 40%, chest pains 39%, vomiting 37%, loss of weight 28%, regurgitation 24%, and restrosternal oppression 21%. The complications arising during the course of the disease are discussed. There seems to be a correlation between a long standing history of achlasia esophagi and ulcerative cancer at the proximal end of the esophagus. Grading of the dilatations in achalasia esophagi seen on the X-ray films showed a symptomatic correlation as the disease progresses from mild to pronounced dilatation. The correlation did not hold good for the monstrously dilated esophagus, the symptoms being less severe and less frequent. The gradings proved serviceable on the whole. The pathological features of the disease included narrowing of the cardia (97%), muscular hypertrophy (17%), spasm (12%), esophagitis (5%) and esophageal lengthening (3%).

### 8074 COMBINED HIATAL HERNIA AND GASTRIC ULCER AT THE LEVEL OF THE HERNIAL STRICTURE.

*(Fr.)* Girard, M. (Fac. Med., Lyon, France) and R. Alary. *Actualites Hepatogastroent Hotel Dieu* 5(3): 91-120, 1969.

The clinical histories of 12 patients (4 males and 8 females, average age 62 yr) with hiatus hernia and associated gastric ulcer at the level of the hernial stricture are summarized. Among the etiologic factors of the hiatus hernia, obesity was present 5 times. Familial ulcerous histories were present in 6. The main symptom was pain, of an ulcerous type in 9, and of hiatal type in 2 cases. There were 6 cases of digestive hemorrhage. A marked change in the general condition was present in 7. In 12 cases, the ulcer was demonstrated in 11 by radiography. Good results with disappearance of all the symptoms presented were observed in 6, in 1 by medical, and 5 times by surgical treatment. Average results were obtained in 2 and poor in 1. Three patients died.

### 8075 CARCINOMA OF THE ESOPHAGUS IN IBADAN.

*(E.)* Solanke, T. F. (Dept. Surg., U. Ibadan, Nigeria). *Int Surg* 52(3):204-209, 1969.

Twenty-nine patients with carcinoma of the esophagus were seen during the period from 1958 to 1967. Among these, adequate data were available regarding 16 males and 9 females, about half of them between 50-60 yr of age. The youngest was 35 and the oldest 70 yr. Dysphagia, with a progressive history, was the most prominent symptom, vomiting was second. Weight loss was typical. Most of the patients were petty traders and farmers from the lower socio-economic group whose diet is mainly traditional: yams, cassava, maize, palm and peanut oil, and red pepper. Only 2 patients smoked, 2 admitted to heavy drinking, 13 patients neither smoked nor drank. Most of the lesions occurred in the middle parts of the esophagus. Of all the lesions, 14 were well differentiated and 7 were poorly differentiated squamous cell carcinomas and 4 were adenocarcinomas. Eighteen patients had unresectable lesions; 6 patients had what were considered resectable lesions, and all of these died between the 1st and 10th postoperative days. Treatment of esophageal carcinoma includes surgical extirpation of the lesion, palliative surgical measures to relieve symptoms of obstruction, irradiation, therapy and general medical measures. The results of treatment were disappointing because of the late arrival of the patients in hospitals. Evidence suggests that etiologic factors are more environmental than genetic, with many being suspect.

### 8076 AN EVALUATION OF NISSEN'S FUNDOPLICATION IN THE TREATMENT OF HIATUS HERNIA.

*(Rus.)* Utkin, V. V. (Latv. Sci. Res. Inst. Exp. Clin. Med., USSR). *Khirurgiia (Moskva)* 45(2):6-9, 1969.

Results of 22 Nissen's fundoplications performed in 21 patients with sliding hiatus hernia and in 1 case with paraesophageal hernia are presented. In the majority of cases a serious pain syndrome which did not respond to more conservative treatment was the basic manifestation of the disorder. As a rule fundoplication was preformed from the abdominal cavity. However, in obese patients the depth of the incision through fatty layers made this approach difficult; in these cases a wide transverse laparotomy was indicated. It is essential to insert a thick gastric tube into the esophagus and cardiac sphincter during surgery to prevent stricture of the esophagus, which was observed in 6 patients. The complication was eliminated by subsequent bougienage or bloodless dilatation of the esophagus. One patient died 4 days after surgery from duodenal ulcer perforation and diffuse peritonitis. In all other cases both immediate and long-term (up to 3 yr) results were good.

8077 **ESOPHAGEAL ATRESIA. I. ANASTOMOTIC STRICTURES FOLLOWING PRIMARY SURGICAL MANAGEMENT.** *(E.)* Livaditis, A. (Karolinska Hosp., Stockholm, Sweden), L. Okmian and O. Eklöf. *Scand J Thorac Cardiovasc Surg* 2(3):151-158, 1969.

Among 109 patients subjected to primary repair for esophageal atresia, 80 survived and 31 of them developed strictures. Early onset of dysphagia was encountered in 22. In the remaining 9, symptoms appeared several months after esophageal reconstruction. Twenty-five patients were treated by dilatations and 6 by operation; 5 with resection of the stricture and 1 with plastic revision and dilatation during operation. There were 4 fatalities in the entire series: 1 directly related to instrumentation and 3 to the operative management of the strictures. Of the 27 survivors; 16 achieved a satisfactory esophageal lumen and became asymptomatic; 8 continued to have symptoms in spite of adequate anastomotic width and 3 showed neither radiographic nor clinical improvement.

8078 **DIABETES AND OESOPHAGEAL DYSFUNCTION.** *(E.)* Silber, W. (Dept. Surg., U. Cape Town, S. Africa). *Brit Med J* 3(5672):688-690, 1969.

Cineradiographic and manometric studies of esophageal function were carried out in 4 groups of patients (those suspected of having esophageal disease, with or without symptoms; and 2 groups of diabetes, with or without diabetic neuropathy). Of 20 nondiabetic and asymptomatic patients, abnormal cineradiographic findings and 9 abnormal manometric findings were observed. Of 20 nondiabetic patients with esophageal symptoms, 14 had abnormal cineradiographic and 14 abnormal manometric findings. Of 20 diabetic patients without neuropathy, 5 had abnormal cineradiographic and 12 abnormal manometric findings. Of 20 diabetic patients with neuropathy 11 and 12, resp., had abnormal findings.

8079 **PEPTIC STENOSIS OF THE OESOPHAGUS IN THE NEONATE AND CHILDHOOD (DIAGNOSTIC PROBLEMS).** *(E.)* Fortier-Beaulieu, M. (Hopital des Enfants-Malades, Paris, France), F. Froget and M. Labrune. *Ann Radiol (Paris)* 12(3/4):163-172, 1969.

Organic narrowing of the esophagus occurring secondarily to esophageal reflux of gastric juice due to incompetence of the cardia is encountered frequently in childhood. Among the 25 patients studied, there were 9 cases of early peptic stenosis (patients 0-3 months of age), 10 cases of secondary stenosis (aged 1-2 yr), and 6 cases of late stenosis (5-6 yr). Congenital stenosis is only rarely the cause of death, but 4 of the 25 patients in this series died of peptic stenosis. Radiocinematography was included in the diagnostic procedures. Early stenosis was characterized by neonatal or post-natal esophagitis resulting in a tubular stenosis which progressed or evolved into a scarred stenosis with risk of recurrence, anemia and obstruction. Signs of peptic esophagitis should be sought and early narrowing recognized in every case of hiatus hernia (especially minor) or simple incompetence of the cardia. Stenosis due to scarring was principally encountered in the cases of secondary stenosis, and must be distinguished from congenital stenosis. Late stenosis, due often to neglected or badly managed hiatus hernia raised difficult therapeutic problems. Late stenosis, unlike the other 2 types, does not present a difficult diagnostic problem (cardiospasm is readily distinguished). Symptoms for all types sometimes also included blood in vomit or stools, and dysphagia.

8080 **ESOPHAGEAL DIAMETER AND THE TREATMENT OF ACHALASIA.** *(E.)* Sultan, M. (Lahey Clin. Found., Boston, Mass.) and R. A. Norton. *Amer J Dig Dis* 14(9):611-618, 1969.

The effect of pneumatic dilation and Heller esophagomyotomy on esophageal diameter was studied in 49 patients with achalasia and 15 normal subjects. A standardized radiological technique was used with the patient in a horizontal position and with a 36 inch target-to-film distance. The 15 normal subjects had a mean esophageal diameter (± SD) of 1.50 ± 0.37 cm, and untreated patients had a diameter of 4.85 ± 1.44 cm. When pneumatic dilation resulted in a fall in mean diameter to 2.27 ± 0.49 cm, symptoms improved; they persisted in those with a diameter of 4.99 ± 1.23 cm. Heller esophagomyotomy led to a decrease in diameter to 2.29 ± 0.62 cm in those with relief of symptoms, while symptoms continued in those with a diameter of 4.35 ± 0.80 cm. In a longitudinal study of individual patients, it was noted that when treatment resulted in a diameter of less than 3.0 cm, symptoms improved. If esophageal size remained over 3.0 cm after treatment, however, dysphagia or pain recurred and persisted. Serial measurements of esophageal diameter, therefore, may be valuable in the clinical management of achalasia.

8081 **THE TREATMENT OF ESOPHAGEAL ATRESIA.** *(Fr.)* Cuendet, A. (Pediat. Clin., U. Geneva, Switzerland). *Helv Chir Acta* 35(3):338-367, 1968.

8082 **STUDY OF THE DEGLUTITION BY THE ISOTOPIC METHOD IN CASES OF PHARYNGOLARYNX AND ESOPHAGUS NEOPLASMS.** *(It.)* Meldolesi, U. (Inst. Nuclear Med., U. Milan, Italy) and M. A. Fidanza. *Radiol Med (Torino)* 53(7):677-686, 1967.

8083 **ESOPHAGEAL COIN REMOVAL USING A FOLEY CATHETER. [CASE REPORT]** *(E.)* Palmisano, D. J. (Dept. Surg., Tulane U., New Orleans, La.). *J Louisiana Med Soc* 120(11):428-429, 1968.

8084 **TREATMENT OF ACHALASIA OF THE CARDIA.** *(E.)* Taylor, H. (The London Hosp., England). *J Roy Coll Surg Edinb* 12(5):329-330, 1968.

8085 THE SURGICAL TREATMENT OF HIATUS HERNIA. *(E.)* Flavell, G. (The London Hosp., England). *J Roy Coll Surg Edinb* 12(5):327-329, 1968.

8086 CANDIDA OESOPHAGITIS. [CASE REPORT] *(E.)* Friedmann, G. (Dept. Radiol., U. Cologne, Germany) and R. Tismer. *German Med Monthly* 13(9): 418-420, 1968.

8087 DYSFUNCTION OF THE ESOPHAGUS. *(E.)* Andersen, H. A. (Mayo Grad. Sch. Med., Rochester, Minn.). *Otolaryng Clin N Amer* June:195-217, 1968.

8088 PRIMARY ADENOACANTHOMA AND ADENOCARCINOMA OF THE MID-THORACIC ESOPHAGUS. *(Jap.)* Kasai, M. and N. Shimamura. *Jap J Cancer Clin* 13(9):700-704, 1967.

8089 PHARYNGO-ESOPHAGEAL DIVERTICULUM. *(Dan.)* Ladegaard-Pedersen, H. J. *Nord Med* 78(38):1229-1232, 1967.

8090 ESOPHAGEAL CHANGES IN SCLERODERMA. *(Sp.)* Alvarez Castro, L. A. (5th Chair Clin. Med., Central U. Venzuela, Caracas), H. Wuani E. and L. Suarez de Ron. *GEN* 22(4):319-326, 1968.

8091 FOREIGN BODY (NEEDLE WITH THREAD) IN THE ESOPHAGUS. [CASE REPORT] *(E.)* Takeda, K. (Yamaguchi U. Sch. Med., Japan). *Bull Yamaguchi Med Sch* 14(4):377-380, 1967.

8092 HIATUS HERNIA WITHOUT ESOPHAGEAL REFLUX. *(E.)* Gahagan, T. (Henry Ford Hosp., Detroit, Mich.). *Surgery* 95:595-605, 1967.

8093 SURGERY AND IRRADIATION IN THE TREATMENT OF ESOPHAGEAL CANCER. *(E.)* Cliffton, E. E. (Mem. Sloan-Kettering Cancer Ctr., New York, N. Y.). *Hosp Pract* 4(10):88-98, 1969.

8094 THE NEGLECTED HIATUS HERNIA. LATE COMPLICATIONS OF PEPTIC ESOPHAGITIS: ESOPHAGEAL STENOSIS AND SHORTENING. *(Fr.)* Nelson, J. B. (Riverside Community Hosp., Calif.). *Amer J Surg* 118(4):641-645, 1969.

8095 SURGICAL TREATMENT OF SCHATZKI'S RING. *(Fr.)* Grosdidier, J. (Cent. Surg. Clin., Nancy, France) and J. Borrelly. *Arch Franc Mal App Digestif* 57(12):1046-1048, 1968.

8096 THE TECHNIQUE OF BOUGIENAGE OF CICATRICIAL STENOSIS OF THE ESOPHAGUS. *(Rus.)* Vantsyan, E. N. (Min. Health, Moscow, USSR). and R. A. Toshchakov. *Grudn Khir* 10(6):96-101, 1968.

8097 HIATAL HERNIORRHAPHY WITH POSTERIOR GASTROPEXY UTILIZING THE LIGAMENTUM TERES HEPATIS. *(E.)* Van Helsdingen, G. C. F. (Germiston, S. Africa). *Int Surg* 50(1):128-132, 1968.

8098 ANESTHESIA FOR ESOPHAGEAL ATRESIA. *(Sp.)* Martínez Jaraíz, J. (Niño Jesus Hosp., Madrid, Spain) and L. Cirac Andreu. *Rev Esp Anest* 15(4): 677-682, 1968.

8099 CHANGES IN THE ESOPHAGUS DURING SCLERODERMA . *(Rus.)* Daniielian, G. A. and F. S. Drampian. *Zh Eksp Klin Med* 8(6):60-64, 1968.

8100 DIPHENYLAMINE INDEX, HYALURONIDASE ACTIVITY AND HEPARINE TIME IN THE BLOOD OF DOGS WITH CHEMICAL INJURIES OF THE ESOPHAGUS. *(Rus.)* Avakian, S. M. (Yerevan Inst. Postgrad. Med., USSR), N. L. Aslanian and L. A. Airapetian. *Zh Ushn Nos Gor Bolez* 28(5):76-78, 1968.

8101 RARE COMPLICATIONS DURING RETROSTERNAL SMALL INTESTINE PLASTIC SURGERY OF THE ESOPHAGUS. *(Rus.)* Volobuiev, N. N. (Crimean Med. Inst., Simferopol, USSR). *Klin Khir (Kiev)* (9):77, 1968.

8102 FOREIGN BODY IN THE ESOPHAGUS DIAGNOSED ERRONEOUSLY AS IN THE RIGHT BRONCHUS. *(Jap.)* Takaba, T. (Sch. Med., Showa U., Japan), Y. Nishimura, K. Kaneko, Y. Iwahori, I. Hayakawa, and H. Kooda. *J Showa Med Ass* 28(7):463-466, 1968.

8103 ESOPHAGO-TRACHEAL AND ESOPHAGO-BRONCHIAL FISTULAS IN MALIGNANT TUMORS OF THE ESOPHAGUS AND RESPIRATORY TRACT. *(Rus.)* Bagirov, D. M. (Sci. Res. Inst. Clin. Exp. Surg., Moscow, USSR). *Vop Onkol* 14(3):68-69, 1968.

8104 PRIMARY CARCINOMA OF THE TRACHEA FOLLOWED BY PRIMARY CARCINOMA OF THE ESOPHAGUS AFTER A SIX-YEAR INTERVAL. A CASE REPORT. *(E.)* Senyszyn, J. J. (Columbia-Presbyterian Med. Ctr., New York, N. Y.) and H. W. Jacox. *Radiology* 92(6):1346-1348, 1969.

8105 DEFINITE SURGERY FOR THE TREATMENT OF ESOPHAGEAL PERFORATION WITH DISTAL OBSTRUCTION. *(E.)* Kaiser, G. A. (Columbia Presbyterian Hosp., New York, N. Y.), F. O. Bowman Jr and R. H. Wylie. *Ann Thorac Surg* 8(1):75-83, 1969.

8106 AN APPROACH TO THE MANAGEMENT OF CARCINOMA OF THE OESOPHAGUS IN THE BANTU. *(E.)* Luke, S. I. (Baragwanath Hosp., Johannesburg, S. Africa). *S Afr Med J* 43(21):674-679, 1969.

8107 THE PATHOGENESIS OF CARDIOSPASM (ACHALASIA OF THE ESOPHAGUS) IN CHILDREN. *(Rus.)* Geras'kin, V. I. (N. I. Pirogov 2nd Moscow Med. Inst., USSR) and L. K. Lindenberg. *Vop Okhr Materin Dets* 12(12):48-51, 1967.

8108 CHANGES IN SURGICAL TREATMENT OF HIATAL HERNIA IN INFANTS. A STUDY OF 219 CASES AT THE ENFANT-MALADES SURGICAL CLINIC

**BETWEEN 1951-1965.** *(Fr.)* Pellerin, D. (Sick Child. Hosp., Paris, France) and C. Nihoul-Fekete. *Sem Hop (Paris)* 43(45/11):2794-2810, 1967.

8109 **ENDOSCOPIC EXPERIENCE IN THE STUDY OF THE ESOPHAGUS IN PORTAL HYPERTENSION SYNDROME.** *(Rus.)* Patsiora, M. D. (52nd Munic. Clin. Hosp., Moscow, USSR) and L. M. Karpman. *Klin Khir (Kiev)* (10):35-37, 1967.

8110 **ESOPHAGOMANOMETRY IN HERNIAS IN THE ESOPHAGEAL OPENING OF THE DIAPHRAGM.** *(Rus.)* Chissov, V. I. (Sci. Res. Inst. Clin. Exp. Surg., Moscow, USSR), N. N. Kanshin and A. G. Vykhovskaia. *Klin Khir (Kiev)* (10):38-43, 1967.

8111 **HIATAL HERNIAS IN CHILDREN. I. PATHOLOGICAL ANATOMY. [CASE REPORT]** *(Fr.)* Borde, I. and B. Duhamel. *Ann Chir Infant* 8(4):252-269, 1967.

8112 **HIATAL HERNIAS IN CHILDREN. II. PHYSIOLOGY.** *(Fr.)* Soave, F. *Ann Chir Infant* 8(4):270-286, 1967.

8113 **HIATAL HERNIAS IN CHILDREN. III. CLINICAL STUDY.** *(Fr.)* Borde, J., B. Duhamel, M. Nussle and M. Bettex. *Ann Chir Infant* 8(4):287-292, 1967.

8114 **HIATAL HERNIAS IN CHILDREN. IV. RADIOCINEMATOGRAPHIC STUDY.** *(Fr.)* Sauvegrain, J. (Paris, France). *Ann Chir Infant* 8(4):293-308, 1967.

8115 **HIATAL HERNIAS IN CHILDREN. V. CHANGES IN CASES THAT WERE NOT OPERATED.** *(Fr.)* Nussle, M. (Lausanne, Switzerland), N. Genton and Phillippe. *Ann Chir Infant* 8(4):309-314, 1967.

8116 **HIATAL HERNIAS IN CHILDREN. VI. CONSTRICTION IN HIATAL HERNIAS IN CHILDREN.** *(Fr.)* Boureau, M., B. Duhamel and J. Borde. *Ann Chir Infant* 8(4):315-316, 1967.

8117 **HIATAL HERNIAS IN CHILDREN. VII. SURGICAL INDICATIONS.** *(Fr.)* Duhamel, B. and J. Borde. *Ann Chir Infant* 8(4):317-321, 1967.

8118 **HIATAL HERNIAS IN CHILDREN. VIII. RESULTS OF SURGICAL TREATMENT OF HIATAL HERNIAS.** *(Fr.)* Borde, H. and B. Duhamel. *Ann Chir Infant* 8(4):322-375, 1967.

8119 **HIATAL HERNIAS IN CHILDREN. IX. PEPTIC STENOSES.** *(Fr.)* Borde, H. and L. Lortat-Jacob. *Ann Chir Infant* 8(4):376-419, 1967.

8120 **MORPHOLOGICAL BASES FOR EXTENDING ESOPHAGUS RESECTION IN CANCER.** *(Rus.)* Cherkasskii, L. A. (Orenburg Med. Inst., USSR) and S. V. Baidukov. *Klin Khir (Kiev)* (11):68-69, 1967.

8121 **COMPARATIVE RESULTS OF 80 CASES OF ESOPHAGUS CANCER TREATED EITHER BY TELECOBALT OR A COMBINATION OF TELECOBALT AND METHYL-HYDRAZIDE.** *(Fr.)* Robillard, J. (Cancer Res. Ctr., Caen, France) and Y. Couedic. *J Radiol Electr* 48(12):867-871, 1967.

8122 **THE PROBLEM OF STOMACH BLOOD SUPPLY, USED IN LEWIS'S ESOPHAGOPLASTY.** *(Rus.)* Sheiko, V. Z. (Leningrad Inst. Postgrad. Med., USSR). *Klin Khir (Kiev)* (10):25-30, 1967.

8123 **ASPIRATION COMPLICATIONS OF ARTIFICIAL ESOPHAGUS.** *(Rus.)* Zhupan, V. F. (S. M. Kirov Milit. Med. Acad., Leningrad, USSR). *Klin Khir (Kiev)* (10):20-21, 1967.

8124 **POSSIBILITIES IN ISOPERISTALTIC DISTRIBUTION OF A SEGMENT OF THE LEFT HALF OF THE LARGE INTESTINE IN ESOPHAGOPLASTY.** *(Rus.)* Belozertsev, A. M. (Donetsk Med. Inst., USSR). *Klin Khir (Kiev)* (10):16-20, 1967.

8125 **DEVELOPMENT OF ESOPHAGUS SURGERY IN THE UKRAINIAN SSR.** *(Rus.)* Kolomiichenko, M. I. and Ia. P. Boikov. *Klin Khir (Kiev)* (10):1-8, 1967.

8126 **TWO CASES OF ESOPHAGUS CANCER AFTER ESOPHAGEAL BURNS.** *(Rus.)* Sibul', S. F. (Tartu Republican Hosp., USSR). *Zh Ushn Nos Gor Bolez* 28(3):108-109, 1968.

8127 **DRAINING OPERATIONS FOR PERFORATION OF THE THORACIC PART OF THE ESOPHAGUS.** *(Rus.)* Shraier, T. I. (Kemerovsk Med. Inst., USSR). *Klin Khir (Kiev)* (3):46-49, 1968.

8128 **CLERVICAL TRACHEOESOPHAGEAL FISTULA DUE TO STEERING WHEEL INJURY. [CASE REPORT]** *(E.)* Michelson, E. (Baltimore, Md.) and A. H. Roque. *Ann Thorac Surg* 5(1):178-182, 1968.

8129 **HIATAL HERNIA.** *(E.)* Blattner, R. J. (Houston, Tex.) *J Pediat* 72(3):424-426, 1968.

8130 **"CLINITEST STRICTURES" OF THE ESOPHAGUS. [CASE REPORT]** *(E.)* Genieser, N. B. (New York U. Med. Ctr., N. Y.) and M. H. Becker. *Clin Pediat (Phila)* 8(7):17a-19a, 1969.

8131 **CONGENITAL ESOPHAGEAL STENOSIS DUE TO TRACHEOBRONCHIAL REMINANTS. [CASE REPORT]** *(E.)* Ishida, M. (Fac. Med., U. Tokyo, Japan), Y. Tsuchida, S. Saito and A. Tsunoda. *J Pediat Surg* 4(3):339-345, 1969.

8132 **"BLIND" ESOPHAGEAL BIOPSY.** *(Ger.)* Ottenjann, R. (Med. Clin., U. Erlangen, Germany), O. Stadelmann and K. Elster. *Materia Med Nordmark* 21(5): 264-273, 1969.

## ESOPHAGUS

8133 **OESOPHAGEAL OBSTRUCTION DUE TO AMOEBIC LIVER ABSCESS.** *(E.)* Baker, N. M. (Mpilo Hosp., Bulawayo, S. Rhodesia) and J. A. Murray. *Cent Afr J Med* 15(6):129-131, 1969.

See also: 7776,8161,8437,8784

# STOMACH
## (Gastric ulcer is placed with peptic ulcer)

**8134 STUDIES IN DUMPING SYNDROME. V. TUBERCULOSIS IN GASTRECTOMIZED PATIENTS.** *(E.)* Hanngren, A. (Kardlinska Hosp., Stockholm, Sweden) and P. Reizenstein. *Amer J Dig Dis* 14(10):700-710, 1969.

In 310 patients with tuberculosis (38 of whom had had partial gastrectomy for duodenal or gastric ulcers) 46 social, clinical, and laboratory parameters were recorded, and a correlation matrix consisting of 11,000 correlations between them was calculated. Results showed that tuberculosis occurred significiantly more often and was more widely extended in gastrectomized patients with dumping syndrome than in patients with normal stomachs. The lower the intestinal absorptions and serum concentrations of nutrients, the more bacilli were found in the sputum, and the more frequently tuberculous relapses occurred in such patients. In addition, the worse the social conditions, the earlier the onset of tuberculosis, and the greater its extent. In Stockholm, the "typical" tuberculosis patient is an alcoholic, divorced, poorly housed, gastrectomized man. Patients with poorer initial social and medical conditions proved more amenable to treatment in terms of increasing weight, reducing erythrocyte sedimentation rate, and improving leukocyte response. On the other hand, the more often the patient is hospitalized with a relapse, the more resistant bacilli become to chemotherapy (or vice versa), causing poor response to treatment, greater extent of disease, and higher mortality. The fact that tuberculosis is frequent among the gastrectomized and the socially indigent, and that it is amenable to treatment in them, motivates the attempt to initiate systematic controls and perhaps even prophylactic treatment.

**8135 ACUTE GASTRIC MUCOSAL LESIONS PRODUCED BY AUGMENTED HISTAMINE TEST.** *(E.)* Katz, D. (New York Med. Coll., N. Y.), I. Siegel and G. B. J. Glass. *Amer J Dig Dis* 14(7):447-455, 1969.

Before and after administration of augmented histamine stimulation preceded by an antihistamine, 20 patients were gastroscoped and subjected to suction biopsy of fundic mucosa under gastroscopic control. Before histamine administration, histologic changes diagnostic of erosive gastritis were noted in only 2 of 20 patients and all gastroscopic examinations showed no erosions. After the augmented histamine test, no overt hematemesis or melena was noted in any of the patients. Severe mucosal hyperemia was seen on gastroscopic examination after histamine in 15, isolated acute gastric erosions in 10, diffuse erosions in 1, and overt intraluminal bleeding in 1. Significant histologic changes were noted ½-1 hr after histamine administration in gastric biopsy specimens. Fifteen showed hemorrhage in the fundic neck and 17 in the lamina propria. The occurrence of erosions and mucosal hemorrhages was apparently not related to the acidity of the gastric secretion as these lesions were noted in patients with gastric anacidity and atrophic gastritis.

**8136 EXTRAHEPATIC BILE DUCT INJURIES IN GASTRECTOMY.** *(Rus.)* Topchiashvili, Z. A. (Cent. Inst. Postgrad. Med., Moscow, USSR) and G. I. Sabel'nikov. *Vest Chir Grekov* 102(3):119-122, 1969.

The records of 16 patients with injury of the bile ducts resulting from gastric resection have been reviewed. Nine of these complications occurred among 2500 gastric resections at 1 institute and 7 were from other hospitals. The Hofmeister-Finsterer technique had been used in 13, the Finster gastrectomy in combination with a cholecystectomy in 2 and a Bilroth I in 1. In 6 cases there had been local technical difficulties during resection caused by penetration of an ulcer into the bile duct with infiltrative inflammatory processes in the terminal portion of the common bile duct. In 3 cases the ducts were probably injured during the operation. In 1 case there was an injury to the retroduodenal portion of the duct during surgery (a complete interruption) which was drained outward over the duodenostomy. In 4 further instances the injury to the common bile duct was observed at the time of surgery and a cholecystojejunostomy with anastomosis performed. Jaundice occurred in 7 cases during the first 3 postoperative days as a result of operative trauma. In 4 it appeared as a result of the inflammatory process in the bile ducts. In 1 case signs of pancreatitis occurred 2 weeks after operation. Trauma to the bile ducts and secondary postoperative strictures were the principle causes of death in 4 patients. Treatment of injuries during operation can be accomplished by the placement of a double ligature on the duct at the lesion with subsequent cholecystoduodenostomy or cholecystojejunostomy, by regeneration of the common duct over a rubber drain with choledochoduodenostomy or choledochojejunostomy.

**8137 ULTRASTRUCTURAL CELL PATTERNS IN HUMAN GASTRIC CARCINOMA COMPARED WITH NON-NEOPLASTIC GASTRIC MUCOSA-HISTOGENETIC ANALYSIS OF CARCINOMA BY MUCOSA--HISTOGENEISTRY.** *(E.)* Sasano, N. (Tohoku U. Sch. Med., Sendai, Japan), K. Nakamura, M. Arai and K. Akazaki. *J Nat Cancer Inst* 43(4):783-802, 1969.

Biopsy specimens from 415 human stomachs, 16 without cancer and 399 with carcinomas, were studied cytologically for a comparison between benign epithelia and carcinoma cells. Of these, 69 were studied by electron microscopy. The foveolar cells, especially those in the pyloric antrum, seemed most significant in the cytogenesis of gastric cancer. Gastric carcinoma cells are markedly variable, but they may be divided into 4 groups: (1) undifferentiated carcinoma cells, (2) carcinoma cells resembling intestinal epithelium, (3) those resembling gastric cells proper, and (4) those resembling epidermoid cells. Electron microscopically, almost all gastric cancers revealed intestinalization. Carcinoma cells similar to the gastric epithelium proper were rarely observed. Among them, surface epithelial cell and foveolar cell types occurred most often. Carcinoma cells bearing zymogen granules were sparse. Twenty-nine adenoacanthomas, including 19 additional subtypes, showed a histologic transition from "adenocarcinoma papillare medullare," and 9 of these showed intestinalization at the same time. So-called signet-ring cells could be divided into 2 groups. Almost all resembled goblet cells, but a few were similar to pyloric gland cells.

### 8138 THE CLINICAL PICTURE, CLASSIFICATION AND TREATMENT OF POSTGASTRECTOMY SYNDROMES.

*(Rus.)* Vilyavin, G. D. (A. V. Vishnevski Inst. Surg., Moskow, USSR) and B. A. Berdov. *Khirurgiia (Moskva)* 45(1):13-21, 1969.

In the literature there are at present about 70 terms describing the various postgastrectomy conditions. Not 1 of these terms can completely define the complex changes resulting in the pathogenesis of the postresection syndrome. The frequency of these conditions varies as reported from 5-40% and even 80% The fact that in the USSR there are 60,000 gastrectomies performed for ulcer treatment alone, emphasize these figures. Clinically the syndrome is manifested by disturbance of 1 or the other group of/ digestive glands in the gastroduodenal tract. All these disturbances result in a dumping of food without duodenal digestion into the empty gut (dumping syndrome). Postgastrectomy disease is classified as follows: 1) organic disease resulting from the operation; 2) functional disease, i.e. dumping syndrome, including the enterogenic, hypoglycemic, ascending loop syndrome and postgastrectomy asthenia; and 3) combined disease, i.e. dumping syndrome with peptic anastomotic ulcer, gastrocolic fistula, deformation and interruption of the evacuation function of the anastomosis. The dumping syndrome can be further classified into light, medium severe and combined. In 168 cases studied, symptomatic conservative therapy gave good early results with the light and medium cases; 68 were completely cured, 31 were somewhat improved and in the rest treatment was without success. The prolonged result of conservative treatment was less satisfactory and most cases had relapses within 6-8 months after treatment. At the present time there are more than 350 reports of operative reconversion in the literature, and most of the authors had good results with the severe dumping syndrome. In 33 surgical cases good results were obtained in 17, satisfactory in 7 and unsatisfactory in 9. The operation of choice in dumping syndrome appears to be duodenoduodenostomy according to Henley, and in combined diseases a double or triple resection with a small bowel transplant.

### 8139 INFANTILE HYPERTROPHIC PYLORIC STENOSIS. AN IMPROVED TECHNIQUE FOR DIAGNOSIS.

*(E.)* Yoyama, W. M. (Marshfield Clin., Wis.). *Amer J Surg* 117(5):650-652, 1969.

In 32 infants with suspected pyloric stenosis which was not felt on initial palpation, an infant nosogastric tube was used as a diagnostic aid. Gastric decompression was performed concomitantly with feeding of the infant, which allowed an accurate and simple examination of the abdomen. Hypertrophic pyloric stenosis was correctly diagnosed in all infants with the disorder (20 of the 32 infants). The 12 remaining infants also were correctly diagnosed as not having pyloric stenosis and this subsequently confirmed by gastrointestinal series and clinical response. Adequate palpation was generally more difficult in those infants without pyloric stenosis. They often ate less eagerly and were usually more irritable. Nevertheless, with patience and gentleness, satisfactory examinations were possible in all cases.

### 8140 IMMEDIATE RESULTS OF RESECTION OF THE STOMACH USING A STITCHING APPARATUS.

*(Rus.)* Kul'chinskii, P. E. (Crimean Med. Inst., Simferopol, USSR) and V. V. Oleksenko. *Khirurgiia (Moskva)* (2):42-44, 1969.

The authors undertook studies of the immediate results of gastric resections performed in patients suffering from peptic ulcer, cancer and polyposis of the stomach, involving the use of a Soviet-made stitching apparatus. A total of 117 patients were operated: 100 for peptic ulcers, 15 for cancer, and 1 for polyposis. The stitching apparati were used for suturing the anastomosis and the gastric or duodenal stump; these procedures are rendered much less troublesome. One modification of the device permits suturing the anastomosis between the gastric stump and the jejunum from the side of the gastrointestinal mucosa. The postoperative period after these gastrectomies proceeded with few complications. Restoration of the evacuatory function of the stomach occurs within the first 2 days after surgery.

### 8141 TREATMENT OF ORGANIC AND FUNCTIONAL DISTURBANCES OF THE OPERATED STOMACH BY GASTRIC-pH-GUIDED RADIOMETRY.

*(It.)* Marcozzi, G. (Dept. Pathol. Surg., U. Rome, Italy), G. di Matteo and R. Mammucari. *Minerva Med* 60(9):337-339, 1969.

A radiometric method for the study of stomach acid secretion is presented. After examining the characteristics and advantages of this technique compared to traditional sondage procedures, the authors report data obtained in a study of a large case group of resected patients in good clinical condition and resected subjects with digestive disturbances attributable to organic and functional changes. In these cases gastric-pH-radiometry constitutes an important diagnostic tool which most of the time makes it possible to carry out guided medical treatment and to intervene surgically only in relatively few cases in which clearly organic alterations are demonstrated.

### 8142 RESULTS OF TREATMENT OF STOMACH CANCER. AN APPRAISAL OF EFFORTS FOR MORE EXTENSIVE SURGERY AND A REPORT OF 1,983 CASES.

*(E.)* Gilbertsen, V. A. (Dept. Surg., U. Minnesota, Minn.). *Cancer* 23(6):1305-1308, 1969.

The records of all patients with stomach cancer seen at the U. of Minn. Med. Ctr. during the 27 yr period (1936-1963) were studied. There has been 100% follow-up for at least 5 yr for the entire group. Particular attention has been given to the period 1958-1963, the most recent period for which a 5 yr follow-up is possible. A total of 1983 patients were seen during the 27 yr period. Five yr survivors numbered 203: an absolute survival rate of 10.2%. The best 5 yr survival rate was during the period 1950-1958 when 604 patients were seen and the rate was 12.2%. The 328 patients seen from 1936-1941 had a 5 yr survival rate of 6.7%. The survival rate for the 824 patients seen from 1942-1949 rose to 10.6%. The 1958-1963 group of 227 patients had a 5 yr survival rate of 8.8%. Of these 227 patients, 196 (86.4%) were operated upon. Of the 196 who had laparotomies 136 (69.4%) underwent gastrectomies and of these 111 (87.5%) were done for cure. Partial gastrectomies for cure were performed on 166 patients in the period 1950-1958 with operative deaths of 22 (13.3%)

while partial gastrectomies for cure were performed on 90 patients in the period 1958-1963 with 23 operative deaths (25.6%). Total gastrectomies for cure were performed on 102 patients in the period 1950-1958 with 23 operative deaths (22.5%) and similar procedures were performed on 21 patients during 1958-1963 with 7 operative deaths (33.3%). The promotion of larger operations and more extensive lymph node dissections resulted in a substantial increase in operative mortality and a significant decrease in total rates of survival.

8143 **PRODUCTION OF ACHLORHYDRIA IN RATS BY DIRECT IRRADIATION OF THE STOMACH.** *(E.)* Murray, M. J. (Dept. Med., U. Minnesota, Minn.), N. Stein, J. Mathews and R. Deyo. *Proc Soc Exp Biol Med* 131(3):737-739, 1969.

To observe the effects of irradiation a technique was devised for obtaining a small sample of gastric juice from live rats. Pairs of rats were exposed to increasing doses of irradiation (800, 1000, 1250, 1500, 1750, 2000, 2250, and 2500 rads) to find the dose required to produce longterm achlorhydria. At least 1750 rads were required to produce enduring achlorhydria. Gastric pH determinations in the living animal correlated well with the degree of impairment of gastric acid secretion induced by irradiation. Rats treated in this way provide a good experimental model comparable to an animal with total gastrectomy but without the disadvantage of an interrupted gut.

8144 **FUNCTION OF THE THYROID GLAND IN PATIENTS WITH GASTRIC CANCER.** *(Rus.)* Khonelidze, G. B. (Moldavian Res. Inst. Oncol., Kishinev, USSR), I. F. Zisman and V. Kh. Frenkel'. *Vop Onkol* 14(3): 70-74, 1968.

8145 **THE SURFACE ANTIGENS OF HUMAN GASTRIC CANCER CELLS.** *(Rus.)* Il'in, K. V. (N. F. Gamalei Inst. Epidemiol. Microbiol., Moscow, USSR) and M. N. Averkiieva. *Vop Onkol* 14(3):17-21, 1968.

8146 **DIAGNOSIS AND TREATMENT OF GASTRIC SARCOMA.** *(Rus.)* Iakhontov, N. Ie. (S. M. Kirov Gorkyi Med. Inst., USSR) and N. A. Terent'ieva. *Vop Onkol* 14(3):112-116, 1968.

8147 **STOMACH CANCER.** *(Por.)* Paulino, F. (Med. Fac., U. Federal Goias, Brazil). *Rev Goiana Med* 14(1/2):123-124, 1968.

8148 **GANGRENOUS INTRATHORACIC STOMACH. [CASE REPORT]** *(E.)* Gibbons, W. D. (Mater Misericordiae Hosp., Rockhampton, Australia). *Med J Aust* 1(11):451-452, 1968.

8149 **GASTROSTOMY WITH THE USE OF MECHANICAL SUTURES BY THE GIRT APPARATUS.** *(Rus.)* Meiman, Z. A. and A. A. Kalmykov. *Klin Khir (Kiev)* (6):23-26, 1968.

8150 **TIMELY DIAGNOSIS OF MALIGNIZATION OF PRECANCEROUS STOMACH DISEASES.** *(Rus.)* Miagkii, M. A. *Klin Khir (Kiev)* (6):63-66, 1968.

8151 **USE OF THE STOMACH WALL AS MATERIAL FOR PLASTIC SURGERY. (LITERATURE REVIEW).** *(Rus.)* Khai, G. A. (I. P. Pavlov 1st Leningrad Med. Inst., USSR). *Klin Khir (Kiev)* (6):53-58, 1968.

8152 **NUMEROUS FOREIGN BODIES IN THE STOMACH.** *(Pol.)* Wiśniewski, J. (Dist. Hosp., Glubczyce, Poland) and M. Madej. *Wiad Lek* 21(3):189-191, 1968.

8153 **SOME REASONS FOR LATE RECOGNITION OF CANCER OF THE STOMACH.** *(Rus.)* Kiiashov, A. P. (Odessa Med. Inst., USSR). *Klin Med (Moskva)* 46(4):19-22, 1968.

8154 **THE FUNCTIONAL STATE OF THE STOMACH IN HEMORRHAGIC FEVER WITH RENAL SYNDROME.** *(Rus.)* Pribylova, N. N. (Khabarovsk Med. Inst., USSR). *Klin Med (Moskva)* 46(4):22-26, 1968.

8155 **THE CLINICAL PICTURE AND COURSE OF GASTRIC TETANY.** *(Rus.)* Pipia, I. K. (Tiflis Med. Inst., USSR) and A. V. Telia. *Klin Med (Moskva)* 46(4):16-19, 1968.

8156 **GASTRIC ULCER CAUSED BY FOREIGN BODY AND COMPLICATED BY PYLORIC STENOSIS.** *(Pol.)* Gruk, M. (3rd Surg. Clin., Bytom, Poland) and J. Rudzki. *Wiad Lek* 21(1):53-55, 1968.

8157 **LATE RESULTS OF SURGICAL TREATMENT OF GASTRIC CARCINOMA.** *(Pol.)* Wajda, Z. (3rd Surg. Clin., Gdansk, Poland), S. Golyński, Z. Gruca and E. Szalach. *Wiad Lek* 21(1):35-41, 1968.

8158 **THE EFFECT OF INSULIN AND GLUCOSE ON THE DEVELOPMENT OF ULCEROUS LESIONS IN THE STOMACH.** *(Rus.)* Lipovskii, S. M. (Leningrad Sanit. Hyg. Med. Inst., USSR). *Biull Eksp Biol Med* 65(2):33-36, 1968.

8159 **BENIGN TUMORS OF THE STOMACH.** *(Ser.)* Dedić, M. (Clin. Hosp., Novi Sad, Yugoslavia) and N. Bošan. *Med Pregl* 21(11/12):439-445, 1968.

8160 **EFFECT OF SEROTONIN INACTIVATORS ON THE SERUM LEVEL OF TRYPTOPHAN IN PATIENTS WITH POST-GASTRECTOMY SYNDROMES.** *(Pol.)* Krynicki, M. (Lodz, Poland). *Wiad Lek* 21(3):171-175, 1968.

8161 **EFFECT OF VAGOTOMY AND PARTIAL GASTRECTOMY ON GASTRO-OESOPHAGEAL SPHINCTER PRESSURES.** *(E.)* Mann, C. V. (The London Hosp., England) and J. D. Hardcastle. *J Roy Coll Surg Edinb* 12(5):326, 1968.

8162 **MOTILITY DISORDERS (NONINFLAMMATORY) AFTER STOMACH SURGERY.** *(It.)* Conti, A. (Cent. Surg. Anat., U. Modena, Italy). *Arch Atti Soc Ital Chir* 1(Part 1):381-427, 1968.

8163 REMISSIONS IN GASTRIC CANCER. [CASE REPORT] *(Hun.)* Hajdu, I. and Kuti, G. *Magy Onkol* 11(2):83-87, 1 967.

8164 DISACCHARIDASE ACTIVITY OF THE JEJUNAL MUCOSA IN NORMAL SUBJECTS AND PATIENTS AFTER PARTIAL GASTRECTOMY. *(E.)* Drube, H. C. (1st Med. Div., U. Kiel, Germany), H. T. Hansen, U. E. Klein and K. Zielke. *German Med Monthly* 12(9):418-421, 1967.

8165 MENINGEAL CARCINOMATOSIS IN GASTRIC CANCER. REPORT OF A CASE IN A 21-YEAR-OLD FEMALE. *(Jap.)* Kawaguchi, T., H. Kudo, Y. Sugiyama and S. Okudera. *Jap J Cancer Clin* 13(8):619-622, 1967.

8166 PRIMARY LYMPHOMAS OF THE STOMACH. *(Por.)* San Juan, F. (Civil Svc. Hosp., Rio de Janeiro, Brazil), F. Duarte, M. Treiger, E. Arduino and L. J. Abrahao. *Hospital (Rio)* 72(2):365-383, 1967.

8167 A CASE OF LINITIS PLASTICA. [CASE REPORT] *(It.)* Bascaino, N. (Munic. Hosp. Maddaloni, Caserta, Italy) and P. Pennino. *Arch Ital Pat Clin Tumori* 10(3/4):281-292, 1967.

8168 ROENTGEN EVALUATION OF THE DILATED STOMACH AND ITS CONTENTS IN THE DIFFERENTIAL DIAGNOSIS OF PYLORIC OBSTRUCTION. *(E.)* Bryk, D. (Maimonides Med. Ctr., Brooklyn, N. Y.) and K. G. Robinson. *Radiology* 89(5):893-895, 1967.

8169 RADIOLOGICAL OBSERVATIONS ON THE RECURRENCES OF THE GASTRIC STUMP IN PEOPLE WHO HAD UNDERGONE SUB-TOTAL GASTRECTOMY FOR CANCER OF THE STOMACH: SIGNIFICANCE OF THE LOCALIZATION OF THE ESOPHAGUS, CARDIAC STOMACH AND FUNDUS. *(It.)* Pastermoli, A. (Inst. Radiol., U. Bologna, Italy). *Radiol Med (Torino)* 53(9): 833-857, 1967.

8170 NON-SURGICAL TREATMENT OF STOMACH CANCER. *(Sp.)* Garcia Carrizosa, R. *Prensa Med Mex* 32(11/12):339-341, 1967.

8171 STOMACH CANCER. A STUDY OF 90 CASES. *(Sp.)* Alvarez Cordero, R., L. Elizondo, J. Ramirez Degollado, B. Sepulveda and L. Landa. *Prensa Med Mex* 32(11/12):342-349, 1967.

8172 STOMACH DIVERTICULA AND THEIR INFLAMMATORY COMPLICATIONS. *(It.)* Marini, D. (Madonna Popolo Munic. Hosp., Omegna, Italy). *Nunt Radiol* 23(9):1169-1179, 1967.

8173 GASTRIC CANCER. SOME RECENT IMPROVEMENTS IN DIAGNOSIS BASED UPON THE JAPANESE EXPERIENCE. *(Rev.)* *(E.)* Prolla, J. C. (Dept. Med., U. Chicago, Ill.), S. Kobayashi and J. B. Kirsner. *Arch Intern Med (Chicago)* 124(2):238-246, 1969.

8174 GASTROCOLIC FISTULA: A COMPLICATION OF GASTROSTOMY IN INFANCY. [CASE REPORT] *(E.)* Cook, R. C. M. (Alder Hey Hosp., Liverpool, England). *J Pediat Surg* 4(3):346-349, 1969.

8175 NEONATAL PERFORATION OF THE STOMACH. *(E.)* Robarts, F. H. (Royal Hosp. Sick Child., Edinburgh, Scotland). *Z Kinderchir* 5(Suppl.):62-76, 1968.

8176 MASSIVE LEIOMYOMA OF THE STOMACH IN AN 8 YEAR OLD GIRL. *(Rus.)* Kosmachev, V. I. (Minsk Med. Inst., USSR) and P. I. Ivanskii. *Vop Onkol* 14(5):91-93, 1968.

8177 MALIGNANT TUMORS OF THE STOMACH IN YOUTHS UNDER 30 YEARS OF AGE. CLINICAL-STATISTICAL REPORT. *(It.)* Busetto, G. (Gen. Surg. Clin., U. Florence, Italy), G. Bocus and R. Tilli. *G Veneto Sci Med* 23(7/8):377-412, 1968.

8178 ACUTE PHLEGMONOUS GASTRITIS, A RARE CAUSE OF DIFFUSE PURULENT PERITONITIS. *(Rus.)* Iacomi, G. (Piatra Neemţ, Hosp., Romania), M. Voloseţchi and M. Ciocan. *Rev Med Chir* 72(4):995-998, 1968.

8179 THE RELATIVE MERITS OF PRESENT-DAY TECHNIQUES IN THE DETECTION OF GASTRIC CARCINOMA. *(E.)* Piper, D. W. (Roy. North Shore Hosp., Sydney, Australia). *Aust Radiol* 12(2):118-120, 1968.

8180 THE NUTRITION OF THE GASTRECTOMITE. *(E.)* Gatenby, P. B. B. (Trinity Coll., Dublin, Ireland). *J Irish Med Ass* 61(373):250-251, 1968.

8181 RESECTION OF THE CANCEROUS PYLORUS PERFORMED BY PROFESSOR BILLROTH. *(E.)* Wolfler, A. (Surg. Clin., U. Vienna, Austria). *Rev Surg (Phila)* 25(6):381-408, 1968.

8182 THORACOABDOMINAL DUPLICATION CYST CONTAINING HETEROTOPIC GASTRIC MUCOSA: REPORT OF A CASE. *(E.)* Lawson, R. S. (Osteopathic Hosp., Tulsa, Okla.). *J Amer Osteopath Ass* 67(11):1292-1296, 1968.

8183 ULCERATED GASTRIC PLASMACYTOMA. *(Fr.)* Jocu, I. (Clin. Radiol., Bucharest Hosp., Romania). *Arch Franc Mal App Digestif* 57(12):1033-1040, 1968.

8184 THE EVOLUTION AND TREATMENT OF A CASE OF GASTRIC DAMAGE BY HYDROCHLORIC ACID. *(Fr.)* Lavigne, J. (Baviere U. Hosp., Liege, France), R. Lemaire and O. Grosjean. *Acta Chir Belg* 67(3): 272-280, 1968.

8185 STOMACH VOLVULUS CAUSED BY LIVER ANOMALIES. *(Fr.)* Iliesco, G. (Bucharest, Romania), N. Neagu and J. Splouchal. *Bull Soc Int Chir* 27(6):557-562, 1968.

## STOMACH

8186 GASTRIC SCHWANNOMA. *(Sp.)* Comas Vivé, R. and A. Pardo. *Bol Soc Cir Rosario* 35(1):27-33, 1968.

8187 STOMACH NECROSIS AS A RESULT OF THORACIC-ABDOMINAL INJURIES. *(Rus.)* Zoria, V. G. (Vinnitsa Med. Inst., USSR). *Klin Khir (Kiev)* (5):48-49, 1969.

8188 WRONG ANASTOMOSES DURING GASTRECTOMY. *(Rus.)* Epshtein, Ia. G. (Stravropol Med. Inst., USSR), S. Le Pavliuchenko and L. A. Geishin. *Klin Khir (Kiev)* (5):45-46, 1969.

8189 MIGRATING THROMBOPHLEBITIS IN STOMACH CANCER. *(Rus.)* Morgun, I. F. (Chernigov Regional Hosp., USSR). *Vrach Delo* 50(5):135-137, 1969.

8190 CLINICAL SIGNIFICANCE OF DETERMINATION OF ACID AND ALKALINE COMPONENTS IN THE STOMACH CONTENTS DURING DIFFERENT DISEASES OF THE STOMACH. *(Rus.)* Kravchenko, A. I. (Kiev Med. Inst., USSR). *Vrach Delo* 50(5):36-40, 1969.

8191 PROTEIN-FORMING FUNCTION OF THE LIVER IN PATIENTS WITH STOMACH CANCER DURING INTRAVENOUS AND REGIONAL INTERARTERIAL CHEMOTHERAPY WITH 5-FLUOROURACIL. *(Rus.)* Chernyi, V. A. (Kiev Sci. Res. Inst. Exp. Clin., Oncol., USSR). *Vrach Delo* 50(5):49-51, 1969.

8192 ISCHEMIC NECROSIS OF THE PROXIMAL GASTRIC REMNANT. A COMPLICATION OF SUBTOTAL GASTRECTOMY. [CASE REPORT] *(E.)* Joseph, P. S. (San Francisco Gen Hosp., Calif.). *Amer J Surg* 118(4):582-586, 1969.

8193 THYROID HYPERFUNCTIONING MASKED BY SYMPTOMS OF THE GASTRIC POST-RESECTION SYNDROME. *(Pol.)* Gruk, M. (3rd Surg. Clin., Silesian Acad. Med., Bytom, Poland) and M. Martula. *Przegl Lek* 24(7):602, 1968.

8194 STOMACH CANCER ASSOCIATED WITH CARCINOID TUMOR OF RECTUM. *(E.)* Yamagiwa, H. (Mie Prefectual U. Sch. Med., Tsu, Japan). *Mie Med J* 17(3):249-253, 1968.

8195 GASTRIC BLEEDING DUE TO SPLENIC VEIN THROMBOSIS. A REPORT OF THREE CASES. *(E.)* Hershfield, N. B. (Calgary Associate Clin., Alberta, Canada) and I. Morrow. *Canad Med Ass J* 98(13): 649-652, 1968.

8196 EOSINOPHILIC GRANULOMA OF THE STOMACH. A REPORT OF THREE CASES. *(E.)* Hardy T. G. Jr., (Forsyth Mem. Hosp., Winston-Salem, N. C.) and W. Elesha. *Amer Surg* 34(4):296-299, 1968.

8197 PERNICIOUS ANEMIA IN THE SECOND DECADE OF LIFE. *(E.)* Lampkin, B. C. (U. Cincinnati Coll. Med., Ohio) and W. K. Schubert. *J Pediat* 72(3):393-396, 1968.

8198 LINITIS PLASTICA ASSOCIATED WITH COMPLETE SITUS INVERSUS. REPORT OF A CASE. *(E.)* Lukash, W. M. (Natl. Naval Ctr., Bethesda, Md.) and D. K. Wentz. *Med Ann D C* 37(4):217-220, 1968.

8199 MOTOR-EVACUATORY FUNCTION OF THE STOMACH AND INTESTINES AFTER RESECTION OF THE CARDIAL PORTION OF THE STOMACH. *(Rus.)* Baidala, P. G. (Tomsk Med. Inst., USSR). *Klin Khir (Kiev)* (3):23-25, 1968.

8200 INDUCTION OF GLANDULAR STOMACH TUMORS IN RATS. *(Rus.)* Arkhipov, G. N. (Inst. Nutrit., Moscow, USSR). *Biull Eksp Biol Med* 65(2): 94-97, 1968.

8201 STENOSIS CAUSED BY HYPERTROPHY OF THE PYLORUS WITH GASTRIC VOLVULUS. *(Sp.)* Moreno Torres, E. (Valencia, Spain). *Bol Soc Valenciana Pediat* 10(40):231-232, 1968.

8202 A CASE OF SPONTANEOUS STOMACH CANCER IN A DOG. *(Rus.)* Ponomar'kov, V. I. (Inst. Exp. Clin. Oncol., Moscow, USSR). *Vop Onkol* 14(5): 97-99, 1968.

8203 SURGICAL TREATMENT OF DUMPING SYNDROME (CLINICAL CONTRIBUTION). *(It.)* Angrisani, G. (Inst. Semeiotic Surg., U. Naples, Italy), M. Monaco and E. Antonini. *Riv Gastroent* 20( 3):178-201. 1968.

8204 THE DANGERS OF USING SOME SUTURING INSTRUMENTS IN STOMACH SURGERY. *(Rus.)* Korshunov, A. V. (Tarsk Interregional Hosp., Omsk Region, USSR). *Klin Khir (Kiev)* (9):63-64, 1968.

8205 FUNCTIONAL STATE OF THE LIVER AFTER COMBINED STOMACH SURGERY. *(Rus.)* Khlopov, N. A. (Karaganda Med. Inst., USSR) and A. V. Sdobin. *Klin Khir (Kiev)* (9):57-60, 1968.

8206 PATHOLOGICAL ASPECTS OF THE DUODENUM AND THE AFFERENT LOOP IN THE BILLROTH II GASTROENTEROSTOMY. *(It.)* *Chir Gastroent* 2(2):141-148, 1968.

8207 ENDOSCOPIC DIAGNOSIS OF STOMACH TUMORS. *(It.)* Lenzi, G. (Inst. Gen. Med. Clin. Med. Ther., U. Bologna, Italy), G. Tucci, O. Masiello, I. Spagna and M. Serantini. *Riv Gastroent* 20(3):229-243, 1968.

8208 CANCER OF THE OPERATED STOMACH. *(It.)* Selli, M. (Inst. Gen. Surg. Clin., U. Pisa, Italy) and C. Colizzi. *Arch Atti Soc Ital Chir* 1(Part 1):619-712, 1968.

8209 CHANGES IN THE PYLORUS FOLLOWING VAGOTOMY IN DOGS. *(E.)* Maier, W. P. (Temple U. Hlth. Sci. Ctr., Philadelphia, Pa.), M. L. Masloff and G. P. Rosemond. *Arch Surg (Chicago)* 97(1):108-110, 1968.

8210 CLINICAL-RADIOLOGICAL DIAGNOSIS OF CANCER OF THE ANTRAL PART OF THE STOMACH AND CHRONIC RIGID ANTRAL GASTRITIS. *(Rus.)* Sagatelian, G. M. and M. G. Bagdasarian. *Zh Eksp Klin Med* 8(6):20-26, 1968.

8211 RADIOLOGICAL VARIANTS OF PYLORIC STENOSIS IN YOUNG CHILDREN. *(Rus.)* Levin, Iu. R. (Leningrad Pediat. Med. Inst., USSR). *Vop Okhr Materin Dets* 13(5):20-24, 1968.

8212 THE ANALYTICAL STUDY ON THE MECHANISM AND TREATMENT OF THE DUMPING SYNDROME, WITH/SPECIAL REGARDS TO THE CHANGE OF AMINES LEVEL IN THE BLOOD. *(Jap.)* Ishiodori, T. (Sch. Med., Showa U., Japan). *J Showa Med Ass* 28(4):239-257, 1968.

8213 X-RAY STUDIES OF GASTRIC DYSKINESIA IN CHILDREN DURING THE FIRST MONTHS OF LIFE. *(Rus.)* Levin, Iu. R. (Leningrad Pediat Med. Inst., USSR). *Vop Okhr Materin Dets* 13(4):17-20, 1968.

8214 ADVANCED STOMACH POLYPOSIS COMBINED WITH ACUTE HEMORRHAGIC PANCREATITIS, PULMONARY TUBERCULOSIS AND PNEUMOCONIOSIS. *(Rus.)* Kaminskii, S. E. (N. I. Pirogov Vinnitsa Med. Inst., USSR). *Klin Khir (Kiev)* (8):57-58, 1968.

8215 LIPOBLASTOMA OF THE STOMACH. *(Rus.)* Borodii, V. A. (Krasilovskii Cent. Regional Hosp., USSR). *Klin Khir (Kiev)* (8):58-59, 1968.

8216 LYMPHOSARCOMA OF THE STOMACH. *(Rus.)* Kononenko, N. M. (Chernigov Regional Hosp., USSR) and Ia. P. Atlasov. *Klin Khir (Kiev)* (8):60, 1968.

8217 GIGANTIC LEIOMYOMA OF THE STOMACH. *(Rus.)* Linchenko, I. F. (Stavropol Med. Inst., USSR). *Klin Khir (Kiev)* (8):60-61, 1968.

8218 METASTASIS, AS SEEN IN AUTOPSIES OF PATIENTS WHO DIED IN THE FIRST MONTH AFTER SURGERY FOR STOMACH CANCER. *(Rus.)* Sagaidak, V. N. (Inst. Exp. Clin. Oncol., Moscow, USSR). *Klin Khir (Kiev)* (8):18-21, 1968.

8219 OPERABILITY OF GASTRIC CARCINOMA. [CASE REPORT] *(E.)* Matis, J. D. (Roosevelt Hosp., New York, N. Y.) and J. E. Thompson. *New York J Med* 69(19):2578-2582, 1969.

8220 ACUTE PHLEGMONOUS GASTRITIS. [CASE REPORT] *(E.)* Nevin, N. C. (Queen's U., Belfast, Ireland), D. Eakins, S. D. Clarke and D. J. L. Carson. *Brit J Surg* 56(4):268-270, 1969.

8221 DISEASES OF THE STOMACH AND THEIR SURGICAL INDICATIONS IN THE ELDERLY. *(It.)* Loddi, L. (Inst. Gen. Surg. Clin., U. Florence, Italy). *Arch Atti Soc Ital Chir* 1(Part 2):551-667, 1967.

8222 MORPHINE ADDICTION AS A CONSEQUENCE OF SYMPTOMATIC TREATMENT OF NON-EXISTENT GASTRIC CARCINOMA. *(Pol.)* Dorobisz, T. (1st Surg. Clin., Wroclaw, Poland), J. Doliński and B. Kowal-Gierczak. *Wiad Lek* 20(16):1571-1573, 1967.

8223 BLOOD-LETTING ALONG WITH SUBSEQUENT RE-TRANSFUSION IN GASTRECTOMIES PERFORMED ON PATIENTS WITH POLYCYTHEMIA VERA. [CASE REPORT] *(Rus.)* Mel'nik, L. A. (Crimean Med. Inst., Simferopol, USSR) and V. N. Sergeiev. *Klin Khir (Kiev)* (10):81-82, 1967.

8224 EOSINOPHILIC GRANULOMA OF THE STOMACH. *(Pol.)* Jankau, O. (Surg. Hosp., Drawsko Pomorskie, Poland). *Wiad Lek* 20(14):1385-1386, 1967.

8225 DYSPEPSIA. *(E.)* Coghill, N. F. (West Middlesex Hosp., Isleworth, England). *Brit Med J* 4(5571):97-99, 1967.

8226 A METHOD OF PRODUCING PYLORIC STENOSIS IN DOGS. *(E.)* Kowalewski, K. (Surg. Med. Res. Inst., U. Alberta, Edmonton, Canada), G. F. Bondar and O. Urushibara. *Canad J Surg* 10(4):483-488, 1967.

8227 MORPHOLOGICAL ANALYSIS OF A SAUCER-SHAPED CANCER OF THE STOMACH. *(Rus.)* Smirnov, N. M. (N. N. Petrov Sci. Res. Inst. Oncol., Min. Publ. Hlth, Leningrad, USSR). *Vop Onkol* 13(12):29-35, 1967.

8228 A CASE OF GIANT HYPERTROPHY OF THE GASTRIC MUCOSAL FOLDS (MENETRIER'S DISEASE). *(Pol.)* Kowalski, W. (Munic. Hosp., Piotrkow Tryb., Poland). *Wiad Lek* 20(22):2059-2062, 1967.

8229 A CASE OF NEUROFIBROMA OF THE STOMACH. *(Pol.)* Gliński, M. (1st Silesian Surg. Clin., Zabrze, Poland) and A. Magońska-Oleszycka. *Wiad Lek* 20(22):2047-2049, 1967.

8230 A CASE OF GASTRIC TUMOR PROLAPSING INTO THE DUODENUM IN THE INITIAL STAGE OF MALIGNANT METAMORPHOSIS. *(Pol.)* Chmielewski, S. (H. Wolf Hosp., Lodz, Poland), H. Wieliczńaski and B. Stanislawska. *Wiad Lek* 20(14):1387-1390, 1967.

8231 USE OF A NEW GASTROSTOMY TUBE IN PATIENTS WITH INSUFFICIENT GASTROSTOMY. *(Rus.)* Lapin, N. D. (Cent. Clin. Hosp., Krasnogorsk, USSR). *Klin Khir (Kiev)* (11):76-78, 1967.

8232 A RARE CASE OF METASTASIS OF STOMACH CANCER INTO THE GALLBLADDER. *(It.)* Bellucci, G. (Inst. Anat. Pathol. Histol., U. Florence, Italy). *Arch De Vecchi Anat Pat* 49(1):315-326, 1967.

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8233 CORONARY ARTERIO-VENOUS ANEURYSM IN THE STOMACH. POST-GASTRECTOMY COMPLICATION. [CASE REPORT] *(Fr.)* Semat, P. (Paris, France) and E. Chapiro. *J Radiol Electr* 48(12):833-836, 1967.

8234 THE EFFECTIVENESS OF SURGICAL TREATMENT OF GASTRIC STUMP CANCER. *(Rus.)* Komarov, A. S. (S. M. Kirov Gorkii Med. Inst., USSR). *Vop Onkol* 13(11):88-91, 1967.

8235 GENERAL AND FUNCTION COMPLICATIONS OF GASTRECTOMIES. I. CLINICAL AND THERAPEUTIC EVALUATION. *(Fr.)* le Bodic, L. (Med. Clin., U. Nantes, France), G. Baudry and J. Visset. *J Med Nantes* 7(4):251-267, 1967.

8236 PSEUDOLYMPHOMA OF THE STOMACH. DIAGNOSTIC AND THERAPEUTIC PROBLEMS. *(Fr.)* Gagnon, M. (Dept. Med., U. Montreal, Canada) and J. Dreyfuss. *Union Med (Canada)* 96(9):1079-1082, 1967.

8237 METHOD OF TREATMENT WITH 5-FLUOROURACIL OF STOMACH CANCER PATIENTS. *(Rus.)* Korman, D. B. (N. I. Pirogov Moscow Munic. Clin. Hosp. No. 1, USSR), L. S. Ievseienko and R. S. Orlova. *Vop Onkol* 13(12):61-65, 1967.

8238 THE EXTENT OF SURGERY IN STOMACH CANCER. *(Rus.)* Khokhlov, S. D. (Ryazan Regional Oncol. Dispensary, USSR). *Vop Onkol* 13(12): 65-69, 1967.

8239 ADENOMATOUS POLYPS OF THE STOMACH. *(Dan.)* Nielsen, K. R. (St. Elisabeths Hosp., Copenhagen, Denmark). *Nord Med* 81(21):653-656, 1969.

8240 CARCINOMA OF THE GLANDULAR STOMACH OF MICE INDUCED BY 4-HYDROXYAMINOQUINOLINE 1-OXIDE HYDROCHLORIDE. *(E.)* Mori, K. (Sch. Med., Showa U., Tokyo, Japan), A. Ohta, T. Murakami, M. Tamura and M. Kondo. *Gann* 60(2):151-154, 1969.

8241 EFFECT OF SALIVARY GLAND EXTIRPATION ON THE CARCINOGENESIS OF RAT STOMACH BY 4-NITROQUINOLINE 1-OXIDE. *(E.)* Ito, M. (Aichi Cancer Ctr. Res. Inst., Nagoya, Japan), H. Suzuki and T. Nagayo. *Gann* 60(2):223-225, 1969.

8242 EXPERIMENTAL CARCINOMA OF THE GLANDULAR STOMACH IN RATS. I. EFFECT OF 7,12-DIMETHYLBENZ[a]ANTHRACENE OR 4-NITROQUINOLINE 1-OXIDE, PLACED ON GLANDULAR STOMACH COMBINED WITH ORAL ADMINISTRATION OF N,N′-(2,7-FLUORENYLENE)BISACETAMIDE OR N-NITROSODIETHYLAMINE. *(E.)* Odashima, S. (Sasaki Inst., Tokyo, Japan). *Gann* 60(2):211-222, 1969.

8243 THE PROBLEM OF VAGOTOMY. *(E.)* Wastell, C. (Westminster Med. Sch., London, England). *J Abdom Surg* 11(6):120-122, 1969.

See also: 7739,7812,7818,8191,8244,8248,8274,8358,8373,8397,8583,8905

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8244 **DUODENAL AND ANTRAL VARICES.** *(E.)* Bateson, E. M. (U. Hosp., Kingston, Jamaica). *Brit J Radiol* 45(502):744-747, 1969.

Esophageal and gastric fundal varices can be demonstrated by barium examination in over 50% of cases with portal hypertension. It is not generally recognized that varices may occur also in the duodenal bulb, pyloric antrum and in other parts of the alimentary tract. Eighteen cases of portal hypertension shown to have esophageal varices who had lobulated filling defects of the duodenal bulb. In some, linear filling defects of the pyloric antrum were also found. In 3 these defects were shown by spleno-portography to be caused by dilated portal venous radicles and evidence is presented to suggest a similar cause in the remaining cases. Varices in this situation are due to anastomoses between branches of the superior mesenteric vein and retro-peritoneal veins. The differential diagnosis and significance of duodenal and antral varices are discussed.

8245 **ISCHEMIC INTESTINAL STRANGULATION IN GERM-FREE RATS.** *(E.)* Yale, C. E. (U. Wisconsin Med. Sch., Madison). *Arch Surg (Chicago)* 99(3): 397-400, 1969.

The importance of the products which result from the autolysis of the necrotic intestine, alone or in combination with intra- and extra-intestinal stool and blood, was studied in 83 germ-free Sprague-Dawley rats with ischemic intestinal strangulation. A lethal set of conditions was not produced by any combination of strangulated intestine (even necrosis of 75% of the small intestine) with or without intra-intestinal stool and blood. Ileal and cecal stool of the germ-free rat appeared to be equally toxic and each was lethal in i.p. doses of approximately 10 ml/kg body weight. The presence of i.p. blood did not influence this reaction . These results indicate that the products of the autolysis of necrotic intestine and its contents, including blood, are by themselves insignificant factors in death from intestinal strangulation. They become important only as potentiating factors in the presence of bacteria. In contrast, the bacteria-free intestinal contents are lethal when free in the peritoneal cavity. Clinically, this suggests the importance of removing any gross contamination from the abdominal cavity after the perforation of the intestine, regardless of the effectiveness of any method that can be devised to control the bacterial factors in intestinal strangulation.

8246 **A CLINICOPATHOLOGIC STUDY OF CASES WITH SMALL BOWEL OBSTRUCTION.** *(E.)* Grewal, R. S. (Kanpur, India) and A. Srinivasan. *Int Surg* 52(3):253-260, 1969.

A study of 153 cases of intestinal obstruction showed 125 cases, (81.7%) with small bowel obstruction and 28 cases, (18.3%) with large bowel obstruction. Males were twice as often affected as females; 84% were between 20 and 30 yr of age; a correct diagnosis was made preoperatively in 74.4%. The mortality was more than 60% in patients who presented 10 days or more after the onset of acute symptoms. Eighty-seven patients presented within 5 days after onset, 26 patients between 5 and 10 days and 10 patients more than 10 days after the onset of acute symptoms. The total mortality was 16.8%. Tuberculosis was the most common cause (41.6%).

8247 **MANAGEMENT OF EXTERNAL SMALL BOWEL FISTULAS.** *(E.)* Lorenzo, G. A. (Northwestern U. Med. Sch., Chicago, Ill.) and J. M. Beal. *Arch Surg (Chicago)* 99(3):394-396, 1969.

Eighteen patients (19-77 yr of age) with external small bowel fistulas were treated between 1959 and 1968. The ileum was involved in 12, the jejunum in 2, undetermined site in 4. Accidental operative injury was the most frequent cause, occurring in 11 patients. Enterocutaneous fistulas associated with regional enteritis were found in 4. Patients (7) with fistulous drainage estimated to exceed 500 ml/24 hr were classified as having "high output" fistulas. Five (71.4%) of these died, accounting for all but 2 of the deaths. Of 23 operations, 9 were successful, 16 recurred or failed to heal and 7 were fatal. Sepsis and distal bowel obstruction were the major factors in the death of 4. The major complications of small bowel fistulas are related to fluid and electrolyte losses, infection within the abdomen and the wound, malnutrition, and skin maceration. Early surgical treatment is indicated when profuse drainage is present or when obstruction of the bowel is present distal to the fistulous tract. The most successful operative procedure is excision of the fistula and resection of the involved bowel, which should be performed whenever the patient can tolerate an operation of this magnitude.

8248 **EXTRACELLULAR VOLUME CHANGES IN EXPERIMENTAL HIGH SMALL BOWEL OBSTRUCTION.** *(E.)* Nepomuceno, O. (Downstate Med. Ctr., Brooklyn, N. Y.), F. G. Baumann and I. F. Enquist. *Amer J Surg* 117(5):643-646, 1969.

Plasma volume, blood volume, and extracellular volume were measured at regular intervals in 17 dogs with high small bowel obstruction and the results compared with those in 12 control animals. The animals with obstruction rapidly lost appetite and weight, became cachectic within 5-7 days after obstruction, but survived 9-12 days. All 3 spaces (plasma volume, blood volume, absolute extra cellular volume) decreased steadily with time in the dogs with obstruction. When calculated as volume/-weight (ml/kg), only plasma volume was significantly less than in the control animals. The weight loss which occurred was not primarily extracellular water, but represented lean tissue mass. Studies of this type are indicated in patients with nonstrangulating small bowel obstruction.

8249 **INTUSSUSCEPTION IN INFANCY AND CHILDHOOD EXPERIENCE WITH SIXTY-FIVE CASES.** *(E.)* Abbassy, A. S. (Fac. Med., U. Alexandria, Egypt), A. H. I. Hassan, G. H. Aref, A. S. El Akkarie, M. S. Abdallah and E. Y. El Sahwi. *Alexandria Med J* 15(1):28-38, 1969.

The 3 yr clinical experience in 65 cases (41 males, 24 females) of intussusception in infants and children is outlined. The problem was most often noted between April and July and again in December. Abdominal colic, vomiting, blood and mucous in the stools along with a mass were found together in 61% of the cases. Colic was found in 91% of the cases, vomiting in 81.5%, the passage of blood and mucus in 81.5% and the presence of a mass was noted in 64% of the cases. The apex of the intussusception was palpable rectally in 20 cases. Simple operative reduction was performed in 25 cases with 1 death. Small intestine resection was carried out without difficulty in 2 cases. Of 18 right hemicolectomies, 6 died postoperatively. Of 4 total colectomies, 2 died. Six cases were successfully treated with barium enemas. Definite causes for intussusception noted at surgery included the appendix (2), Meckel's diverticulum (2), lymphosarcoma (1), polyps (1) and submucous lipoma (1).

### 8250 ATRESIA OF THE SMALL INTESTINE. *(E.)*

Linder, L. H. (Tulane U. Sch. Med., New Orleans, La.) and J. L. Levy Jr. *Southern Med J* 62(5):542-547, 1969.

Thirty-one cases of neonatal small bowel atresia were treated during the years 1957-1967. In most cases of duodenal atresia (17 in this series) the intestinal lumen is plugged by an overgrowth of the epithelial lining from the 6th-9th week of gestation. Jejuno-ileal atresia occurs later in gestation. Thirty-three percent of the cases of atresia in this series occurred in multiple sites. Twenty-nine had symptoms (mainly vomiting) within the first 48 hr of life. A gastric aspiration of over 10 ml in the neonate strongly suggests intestinal obstruction. The gastric aspirate averaged 28 ml in duodenal atresia and 56 ml in those with jejuno-ileal atresia. Plain abdominal X-rays were used in all cases as a diagnostic measure. Barium enemas usually revealed an "unused colon." When gangrenous bowel, perforation or other complications were suspected, prompt operation was performed. In duodenal atresia a side-to-side duodeno-jejunostomy is the procedure of choice. In jejuno-ileal atresia, because of degenerative muscular changes, the dilated proximal segment should be resected. The greatest difficulty was with the jejuno-ileal side-to-side anastomosis without resection of the proximal segment, done in the early years of this study. The survival rate for the cases of duodenal atresia was 65%; for jejuno-ileal atresia, only 36%. The survival rates were not associated with low birth weight nor the age of the patient at operation. Factors improving survival rates in recent years were early diagnosis, improved anesthesia, specialized nursing care, newer monitoring devices, properly performed operative procedure, and early recognition and correction (where possible) of associated anomalies.

### 8251 SMALL BOWEL MOTILITY IN DIABETICS.

*(E.)* McNally, E. F. (Dept. Med., State U. New York), A. E. Reinhard and P. E. Schwartz. *Amer J Dig Dis* 14(3):163-169, 1969.

Studies were conducted on 38 subjects: 8 controls, 12 diabetics without peripheral neuropathy, 12 diabetics with peripheral neuropathy and no gastrointestinal symptoms, 4 diabetics with peripheral neuropathy and chronic diarrhea in whom other causes of diarrhea were excluded, and 2 chronic alcoholics with peripheral neuropathy but without gastrointestinal symptoms. The technic of balloon kymography was used on fasting subjects. An 18 French-Miller Abbott tube was introduced intranasally, positioned fluoroscopically in the duodenum, and attached to the outlet of the reservoir. Air was forced into the balloon with an initial pressure of 20 cm water. The tube's position was checked fluoroscopically every 15 min during the 2 hr observation period. Mecholyl was given to 14 subjects 4-10 mg s.c. Epinephrine, 1:1000, was given to 6 patients s.c. in doses of 0.7 ml. The kymographic records were analyzed for tone, frequency of large and small waves, the length of the bowel traversed by the balloon, and the response to the parasympathomimetic and sympathomimetic agents. In the control subjects and diabetics without neuropathy, an average of 26 ml of air could be introduced before the small bowel wall contracted. The average volume was 31 ml for diabetics with neuropathy, 35 ml for diabetics with neuropathy and diarrhea, and 36 ml for the alcoholics. The changes in tone were statistically significant when diabetics without neuropathy and controls as a group were compared with diabetics with peripheral neuropathy. In all the groups small waves occurred consistently at a rate of 9-11/min. Large waves, however, were at an average rate of 2/5 min in the controls and in the diabetics without peripheral neuropathy. In diabetics with neuropathy and no diarrhea the large waves occurred at a rate of 3-4/5 min period, and in those with diarrhea at 4-6/5 min. Both groups of diabetics tended to show large waves with amplitudes 2-3 times those of controls and diabetics without neuropathy. In all but one instance the balloon moved to the level of the upper or midjejunum during the 2 hr study period. A diabetic with peripheral neuropathy and diarrhea showed the balloon reaching the terminal ileum in 1 hr. (This was consistent in 3 separate intubations in this patient.) Mecholyl produced a slight elevation of tone and a slight increase in the amplitude of both small and large waves but no significant difference among the groups. Epinephrine reduced tone slightly and abolished all activity to the same degree in all the groups.

### 8252 DIVERTICULOSIS OF THE SMALL INTESTINE: CLINICAL, BACTERIOLOGIC, AND METABOLIC OBSERVATIONS IN A GROUP OF SEVEN PATIENTS.

*(E.)* Goldstein, F. (Jefferson Med. Coll., Philadelphia, Pa.), C. W. Wirts, G. Salen and R. J. Mandle. *Amer J Dig Dis* 14(3):170-181, 1969.

Four men and 3 women were studied: 2 patients had very extensive diverticulosis (over 20 diverticula) involving the entire small bowel; 3 had multiple (5-20) duodenal and jejunal diverticula, and 2 had large duodenal diverticula only. Three with diarrhea and steatorrhea were treated and observed for 2-15 months. The other 4 were evaluated once. Intestinal absorptive tests, biopsies, and bacterial cultures of small intestinal aspirates were carried out. Aerobic bacterial cultures were obtained in all and anaerobic cultures with a modified Hungate roll-tube technic were performed in 3. The bacterial flora varied over a wide quantitative range. The highest total counts (more than $10^9$ colony-forming U) were found in the 2 patients with the most severe malabsorption. One patient without steatorrhea had no recoverable aerobic or anaerobic bacterial flora. *E. coli* predominated but *A. aerogenes* and various streptococci were encountered often. Patients treated with antibiotics showed improvement in absorption and reduction in bacterial counts. Repeated short courses of antibiotics were required to prevent relapses, but all 3 patients so treated maintained both clinical and metabolic improvement for 2-15 months without further antibiotics. The clinical remissions were accompanied by the gradual reduction of total bacterial counts to borderline normal limits. Diverticulosis does not lead inevitably to malabsorption since malabsorption of fat, vitamin $B_{12}$ and other nutrients were found only in those patients with excessive bacterial flora. This emphasizes the major role bacteria play in the pathogenesis of malabsorption in diverticulosis of the small intestine. One of the 7 cases is reported in detail.

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8253 **INTUSSUSCEPTION IN ADULTS.** *(E.)* Coran, A. G. (Peter Bent Brigham Hosp., Boston, Mass.). *Amer J Surg* 117(5):735-738, 1969.

Ten cases of intussusception in adults were seen in the period 1913-1968. The ages ranged from 13-75 yr, 8 were in the fourth decade or beyond. Six were female and 4 male. A chronic history of vague abdominal pain occurred in 6 patients; only 4 cases presented as acute abdominal emergency conditions. In 8 cases there was an underlying cause for intussusception; the various causes were duodenal adenocarcinoma, 3 submucous lipomas of the small bowel, an adenomatous polyp of the small bowel, an invaginated Meckel's diverticulum, and 2 carcinomas of the rectosigmoid. Bowel resection was necessary in 8 of the 10. The postoperative course was uncomplicated in 8 with no subsequent difficulties; 1 patient died 1 yr postoperatively from metastatic renal cell carcinoma and 1 patient with severe cardiac disease died on the fifth hospital disease without surgery.

8254 **GASTROSCHISIS.** *(E.)* Rangarathnam, C. S. (Northwestern U. Med. Sch., Chicago, Ill.), R. B. Lal and O. Swenson. *Arch Surg (Chicago)* 98(6):742-748, 1969.

Eight cases of gastroschisis have been treated during a 2½ yr period. Five were female and 3 were male. Their weights ranged from 1400-2700 g. The size of the defect was from 2.5 cm to 6 cm. The eviscerated organs were the stomach, the small intestine, part of the colon (in 3), part of large bowel (in 1). Operation took place between 4 and 7 hr after birth except in 1 instance in which repair took place initially at another hospital. The operative procedure was gastrostomy with intestinal intubation and primary closure in 5; primary closure in 1; reexploration, resection of bowel, end-to-end anastomosis, exploration for 3rd time and lysis of adhesions, gastrostomy and intestinal intubation in 1; and excision of necrotic segment, proximal ileostomy primary closure of abdomen in 1. Four of the patients died: one 40 hr after surgery, two 4 weeks after surgery, and 1 the evening of surgery. Two patients recovered completely and 1 recovered completely after a repair of a ventral hernia 1 yr later. The 8th patient had a postoperative wound infection under the reinforced silicone rubber sheeting (the Schuster technique of closure) which was removed on day 7 and the wound dressed with sterile saline dressings. The infant was well 4 weeks after surgery.

8255 **A CLINICAL INVESTIGATION ON THE RELATIONSHIP BETWEEN THE ARGENTAFFIN CELLS IN DUODENUM AND JEJUNUM AND DUMPING.** *(E.)* Balslev, I. (Munic. Hosp., Copenhagen, Denmark), F. Burcharth and G. Hjort. *Acta Chir Scand (Suppl.)* 396:60-66, 1969.

To make counts of the argentaffin cells, specimens of the duodenum and jejunum were removed from 42 patients operated on for duodenal or gastric ulcers. The patients were reexamined 4 yr after surgery subjected to experimental dumping tests. No relationship was found between the number of argentaffin cells and the occurrence of dumping or the intensity thereof. The theory that an individual variation in the number of argentaffin cells in the duodenum and jejunum influences the tendency to develop dumping was not confirmed.

8256 **INTESTINAL OCCLUSIONS IN THE NEWBORN AND THE INFANT FROM ATRESIA AND STENOSIS OF THE SMALL INTESTINE. 20 CASES.** *(Fr.)* Ingelrans, P. (Cité Hospitalière, Lille, France), M. Lacheretz, P. Debeugny and E. Fiévez. *Lille Chir* 24(2): 86-97, 1969.

The clinical course of 19 newborns and 1 infant with jejunoileum occlusion are reviewed. The infant, with vomiting since birth, at the age of 9 months presented with an acute occlusive syndrome. During operation a stenosis of the initial part of the jejunum with associated duodenal distension was found; a latero-lateral duodeno-jejunostomy was performed, with good results. The other 19 cases of jejunum-ileum obstruction were in newborns; 15 of them could be treated surgically; the other 4 died before surgery because of the severity of their lesions. The surgical techniques used were: 2 latero-lateral anastomoses without resection (1 operative death); 2 latero-lateral anastomoses after resection (1 death); 11 resections followed by termino-terminal anastomoses (3 deaths). The results of surgery were: 5 recoveries, in infants 2-3 days old, treated by resection and termino-terminal suture, and a total of 10 deaths.

8257 **OBSTRUCTION OF THE SMALL INTESTINE.** *(E.)* Davis, S. E. (U. California Med. Ctr., Los Angeles) and L. Sperling. *Arch Surg (Chicago)* 99(4):424-426, 1969.

From 1956 to 1966 at the UCLA Hospital 165 patients (36% male, 64% female; aged a few days to 89 yr, 40% in their 40's and 50's) were treated for 176 small bowel obstructions. Postoperative adhesion in 108 (71.2%) was by far the most common cause of obstruction, followed by carcinoma in 14 (9.3%) and external hernia in 8 (5.6%). Of the 152 operative procedures, 79% were lysis of adhesions only, 13.3% were by-pass, and 16.1% were intestinal resections. All patients in this series were treated with nasogastric suction 86.3% were operated on. Significant infection occurred in 13 (7.4%). All patients with strangulation obstruction were afebrile, as were 87% of those with simple obstruction. Leukocytosis was noted in 55% of the cases of strangulation as compared with 30% of the simple obstructions. Correct preoperative diagnosis was made in only 3 of the 9 cases of strangulation. There were 7 deaths in the series (mortality: 4.6%), 4 of which occurred as a result of sepsis. Rapid preparation and early operation is the only way to prevent simple obstruction from becoming strangulated and overlooked strangulations from deteriorating further. Minimizing contamination at time of operative decompression, or its prevention by peroral aseptic decompression, is of great importance. At the time of operation a large tube may be passed through the mouth into the stomach by the anesthetist and manipulated by the surgeon, and in this way the bowel may be decompressed without the danger of peritoneal contamination. There were no deaths in a separate group of 17 patients with intussusception, 13 of whom underwent operations, and in 4 the abnormality was reduced with barium enema. There were no deaths in this group.

8258 **DUODENAL DIVERTICULA.** *(Ser.)* Kraljević, L. (Dr. Izidor Perera Matić Army Hosp., Split, Yugoslavia) and J. Sokolic. *Lijecn Vjesn* 89(7):543-547, 1967.

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8259 **PRIMARY MALIGNANT NEOPLASMS OF THE SMALL INTESTINE.** *(Pol.)* Kulczykowski, E. (Munic. Hosp. No. 2, Swietochlowice, Poland). *Wiad Lek* 20(15):1455-1457, 1967.

8260 **DUODENAL DIVERTICULA. FOUR CASES.** *(It.)* Farruggia, F. (Gen. Clin. Surg., Inst., U. Bologna, Italy) and N. Marrone. *Clinica (Bologna)* 27(6): 464-493, 1968.

8261 **PRIMARY ULCERATION OF THE SMALL INTESTINE.** *(Pol.)* Masztak, R. (Grochow Hosp., Warsaw, Poland) and M. Swiderska. *Wiad Lek* 21(2): 127-129, 1968.

8262 **NON-EMBOLIC HEMORRHAGIC NECROSIS OF THE INTESTINE IN THE COURSE OF SEVERE CARDIAC FAILURE.** *(Pol.)* Muszkowska-Penson, J. (2nd Clin. Intern. Dis., Acad. Med., Gdansk, Poland) and J. Stolarczyk. *Pol Arch Med Wewnet* 41(1):95-100, 1968.

8263 **CLINICAL AND STATISTICAL CONSIDERATIONS ON A CASE OF NEURINOMA OF THE SMALL INTESTINE.** *(It.)* Esposito, B. (Inst. Gen. Clin. Surg., U. Ferrara, Italy), M. Parmiani and E. Sgarbi. *Policlinico [Prat]* 75(42):1361-1373, 1968.

8264 **HEMORRHAGE FROM MECKEL'S DIVERTICULUM. ARTERIOGRAPHIC FINDINGS. [CASE REPORT]** *(Fr.)* Cornet, A. (Laennec Hosp., Paris, France), R. Abelanet, P. Chaumont, P. Debesse, G. Terris, J. P. Dadoune, A. Epois and R. Reboul. *Sem Hop (Paris)* 43(53):3441-3449, 1967.

8265 **ANATOMOPATHOLOGICAL STUDY OF SEVEN CASES OF DIFFUSE SMALL INTESTINE ATROPHY.** *(Fr.)* Bognel, C. (Saint-Lazare Hosp., Paris, France) and J. J. Bernier. *Sem Hop (Paris)* 43(51):3234-3241, 1967.

8266 **ACUTE DUODENAL OCCLUSION IN THE NEWBORN (28 CASES).** *(Fr.)* de Beaujea, M. J. (Lyon, France), P. Mollard, A. Campo Paysaa and P. Douillet. *Ann Chir Infant* 8(3):157-168, 1967.

8267 **DUODENAL DIVERTICULA. ANATOMIC-PATHOLOGICAL AND CLINICAL CONTRIBUTION.** *(It.)* Ricciardelli, N. (Inst. Surg. Semeiotics., U. Naples, Italy), R. Magli and R. Izzo. *Rass Int Clin Ter* 47(23):1299-1308, 1967.

8268 **CONTRIBUTION TO THE STUDY OF DUODENAL DIVERTICULA.** *(It.)* Piscitelli, L. (S. Leonardo Munic. Hosp., Naples, Italy). *Rass Int Clin Ter* 47(19):1069-1089, 1967.

8269 **PRIMARY CANCER OF THE SMALL INTESTINE. (CLINICAL CONTRIBUTION).** *(It.)* Lezza, F. (Inst. Surg. Semeiotics, U. Naples, Italy) and G. Masturzo. *Rass Int Clin Ter* 47(19):1049-1068, 1967.

8270 **CLINICAL AND PATHOLOGICAL STUDY OF A CASE OF ADENOCARCINOMA OF THE JEJUNUM. [CASE REPORT]** *(Por.)* Carvalhal, S. S. (Paulista Med. Sch., São Paulo, Brazil), R. de Almeida Pupo Jr., J. Goldenberg and E. Atra. *Hospital (Rio)* 72(2): 599-604, 1967.

8271 **DISEASES OF THE SMALL INTESTINE AND THEIR SURGICAL INDICATIONS IN THE ELDERLY.** *(It.)* Loddi, L. (Inst. Gen. Surg. Clin., U. Florence, Italy) and U. Bettini. *Arch Atti Soc Ital Chir* 1(Part 2):669-751, 1967.

8272 **CONGENITAL INTRINSIC DUODENAL OBSTRUCTION: TREATMENT BY DUODENOPLASTY. [CASE REPORT]** *(E.)* Tunell, W. P. (Child. Hosp., Washington, D. C.) and N. K. Connolly. *Clin Proc Child Hosp DC* 25(7):206-213, 1969.

8273 **DUODENAL ATRESIA–REPORT OF THREE CASES.** *(E.)* Moore, W. F. Jr. (Straub Clin., Honolulu, Hawaii). *Straub Clin Proc* 35(1):3-5, 1969.

8274 **COMBINED JEJUNOSTOMY FEEDING AND GASTROSTOMY: POSTOPERATIVE MANAGEMENT.** *(E.)* Nicks, R. (Royal Prince Alfred Hosp., Sydney, Australia). *Med J Aust* 1(21):1064-1066, 1969.

8275 **INTESTINAL OBSTRUCTION IN PREGNANCY. [CASE REPORT]** *(Por.)* Haddad, J. (Fac. Med., U. São Paulo, Brazil) and G. Ellenbogen. *Rev Ass Med Brasil* 15(3):125-129, 1969.

8276 **PERFORATION OF THE SMALL INTESTINE DURING SARCOMA.** *(Rus.)* Negoda, V. F. (1st Kiev Inst. Postgrad. Med., USSR). *Klin Khir (Kiev)* (5):82, 1969.

8277 **PRIMARY CANCER OF THE SMALL INTESTINE.** *(Rus.)* Gubaidullin, A. Sh. *Klin Khir (Kiev)* (5):81, 1969.

8278 **RETICULAR SARCOMA OF THE SMALL INTESTINE.** *(Rus.)* Fedorov, Ie. A. (Kiev Med. Inst., USSR), I. S. Mrost and I. V. Tverdomed. *Klin Khir (Kiev)* (5):82-83, 1969.

8279 **COMPLICATION OF MECKEL'S DIVERTICULUM.** *(Rus.)* Starodubtseva, L. N. (Rostov Med. Inst., USSR) and A. N. Volkov. *Klin Khir (Kiev)* (5):83, 1969.

8280 **VASCULAR COMPRESSION OF THE DISTAL DUODENUM. CLINICAL SYMPTOMS.** *(E.)* Imes, S. K. (Quain Ramstad Clin., Bismarck, N. Dak.). *Minn Med* 52(7):1055-1059, 1969.

8281 **ACUTE VOLVULUS OF THE SMALL BOWEL DUE TO MULTIPLE JEJUNAL DIVERTICULA.** *(E.)* Gupta, S. (Coll. Med. Sci., Banaras Hindu U., India). *Int Surg* 52(2):111-114, 1969.

8282 REDUCTION OF HERNIA "EN MASSE". [CASE REPORT] *(E.)* Querna, M. H. (San Francisco Gen. Hosp., Calif.). *Amer J Surg* 118(4):539-540, 1969.

8283 JEJUNAL DIVERTICULOSIS. [CASE REPORT] *(E.)* Christensen, N. (Gen. Hosp., Eureka, Calif.). *Amer J Surg* 118(4):612-618, 1969.

8284 SURGICAL TREATMENT OF DUODENAL STASIS. *(Rus.)* Smirnov, Ie. V. (Leningrad, USSR). *Vestn Khir Grekov* 102(2):3-7, 1969.

8285 TWO CASES OF MALIGNANT SMALL INTESTINE NEOPLASMS. *(Rus.)* Libov, M. A. (Moscow Clin. Hosp. No. 67, USSR) and Z. Ia. Grach. *Sovet Med* 32(6):138-141, 1969.

8286 INTRAMURAL HEMATOMA OF THE SMALL INTESTINE DURING ANTICOAGULANT TREATMENT. (TWO CASES). *(Fr.)* Thys, O. (Saint-Pierre U. Hosp., Brussels, Belgium), J. P. Lauvaux, P. Mainguet, N. Manelewitsch and E. Jacobs. *Acta Gastroent Belg* 31(8/9): 609-613, 1968.

8287 INDICATIONS OF PROTEIN AND AMINO ACID METABOLISM IN THE BODY DURING ACUTE INTESTINAL OBSTRUCTION. *(Rus.)* Podil'chak, M. D. (Lvov Med. Inst., USSR). *Klin Khir (Kiev)* (6):18-23, 1968.

8288 FOREIGN BODIES IN THE ILEUM ASSOCIATED WITH ILEOCECAL TUBERCULOSIS. *(E.)* Shah, D. K. (All-India Inst. Med. Sci., New Delhi) and B. M. L. Kapur. *Int Surg* 50(1):285-286, 1968.

8289 LATERAL DUODENAL FISTULA. CASE REPORT AND REVIEW OF THE LITERATURE. *(E.)* Cohen, E. A. (Albert Einstein Med. Ctr., Philadelphia, Pa.), E. Felderman, J. Zaslow, J. Portner, A. Labe and J. Mathai. *Int Surg* 50(3):245-251, 1968.

8290 A NEW DISPOSABLE COLOSTOMY AND ILEOSTOMY CLAMP. *(E.)* Fleischer, H. N. (New York Med. Coll., N. Y.) and W. Mersheimer. *Amer J Surg* 115(6):874-875, 1968.

8291 IDIOPATHIC ULCER PERFORATION IN THE SMALL INTESTINE. *(Ser.)* Mitrović, M. (Belgrade Hosp., Yugoslavia), A. Aleksić, I. Segović and A. Selea. *Srpski Arh Celok Lek* 96(10):1011-1014, 1968.

8292 ACUTE INTESTINAL OBSTRUCTION CAUSED BY AN INTERNAL PARADUODENAL HERNIA. [CASE REPORT] *(Por.)* Oriente, L. (Med. Sci. Santa Casa, São Paulo, Brazil) and J. Fava. *Arq Hosp Santa Casa* 14(4): 193-198, 1968.

8293 SOME PROBLEMS CONNECTED WITH ILEOSTOMIES. *(E.)* Pemberton, M. *Acta Chir Hellen* (1):100-105, 1969.

8294 TREATMENT OF ACUTE INTESTINAL OBSTRUCTION. *(Rus.)* Galkin, V. A. (Bereznikov Regional Hosp., USSR). *Klin Khir (Kiev)* (8):47-48, 1968.

8295 PRIMARY CARCINOMA OF THE DUODENUM. DESCRIPTION OF A CLINICAL CASE. *(It.)* Berretti, C. (Inst. Clin. Surg., U. Genoa, Italy) and V. Bachi. *Rass Arch Chir* 6(6Bis):579-597, 1968.

8296 BENIGN TUMORS OF THE DUODENUM. *(It.)* Broglia, S. and A. Dell'Osso. *Chir Gastroent* 2(2):242-248, 1968.

8297 NEURINOMA OF THE SMALL INTESTINE CAUSING DEATH BY BLEEDING. *(Rus.)* Malyi, B. K. (Poltava Munic. Hosp., No. 1, USSR) and G. I. Dikhtenko. *Klin Khir (Kiev)* (3):71-72, 1968.

8298 A METHOD OF REMOVING MECKEL'S DIVERTICULUM IN CHILDREN. *(Rus.)* Shurinok, A. R. (Kiev Red Cross Med. Inst., USSR) and G. S. Drach. *Klin Khir (Kiev)* (3):20-22, 1968.

8299 STENOSING DUODENITIS AFTER OPERATIONS ON THE BILIARY TRACT. *(Pol.)* Czyżewski, K. (1st Surg. Clin., Acad. Med., Wroclaw, Poland), E. Dawiskiba, A. Giermański, L. Oleszkiewicz and H. Starzyk. *Pol Tyg Lek* 23(42):1592-1594, 1968.

8300 INTRODUCTION OF WALKER'S TUMOR IN THE SMALL INTESTINE OF RATS. A PRELIMINARY STUDY OF THE LOCAL FACTORS INFLUENCING METASTASIS. *(E.)* Mouzas, G. L. (Dept. Exp. Surg., Yale U., New Haven, Conn.). *Int Surg* 49(2): 222-225, 1968.

8301 MASSIVE RESECTION OF THE SMALL BOWEL. A REPORT OF TWO CASES. *(E.)* Dinbar, A. (Tel-Aviv U. Med. Sch., Israel), D. Tulcinsky and I. Wolfstein. *Int Surg* 49(5):551-557, 1968.

8302 CARCINOMA OF MECKEL'S DIVERTICULUM. [CASE REPORT] *(E.)* Behan, P. O. (Dept. Pathol., U. Cambridge, Mass.). *J Irish Med Ass* 61(367):15-18, 1968.

8303 ELECTRON MICROSCOPIC STUDIES OF THE MUCOSA OF THE SMALL INTESTINE IN PATIENTS WITH DOWN'S DISEASE. *(Cz.)* Tichý, J. (Inst. Pathol. Anat., Charles U., Hradec Isralove, Czechoslovakia), O. Saxl, M. Hradský and V. Hrstka. *Cesk Gastroent Vyz* 22(7):457-462, 1968.

8304 RETROPERITONEAL TRAUMATIC PERFORATION OF THE DUODENUM. *(Sp.)* Turon Claramunt, J. (Francisco Franco Sanit. Residency, Barcelona, Spain) and A. Blasco Fornies. *Medicamenta* 26(457):280-282, 1968.

8305 MALIGNANT SCHWANNOMA OF THE DUODENOJEJUNAL ANGLE. *(Rum.)* Frunzăreanu,

N. (Inst. Med. Pharm., Iasi, Romania), S. Kreisler, C. Teodorescu, R. Bălan and V. Vasile. *Rev Med Chir* 72(4):1007-1010, 1968.

8306 ANTENATAL JEJUNAL INTUSSUSCEPTION WITH SPECIAL REFERENCE TO THE VALUE OF ROUTINE GASTRIC ASPIRATION IN NEONATES. *(E.)* Laird, A. P. (Royal Hosp. Sick Child., Glasgow, Scotland) and M. M. Kerr. *Z Kinderchir* 5(Suppl.):76-83, 1968.

8307 THE METHOD OF SEROUS PATCHES IN TREATMENT OF LATERAL FISTULAS OF THE DUODENUM. *(Sp.)* Mon, A. B. (Britanico Sanat. Rosario, Argentina). *Rev Argent Cir* 15(5/6):167-168, 1968.

8308 OUTLOOK AFTER MASSIVE RESECTION OF SMALL INTESTINE: WITH A CASE REPORT. *(E.)* Wosornu, J. L. and R. Karikari. *Ghana Med J* 7(4):195-198, 1968.

8309 ENDOMETRIOSIS OF THE SMALL INTESTINE. TWO CASES. *(Fr.)* Lescut, J. (Valenciennes, France), P. Bierent, L. Grégoire and J. Blangy. *Lille Med* 13(6):704-711, 1968.

8310 INTESTINAL RESECTION AND ANASTOMOSIS FOR ILEOCOLIC INVAGINATION IN A 4 MONTH OLD INFANT. POSTOPERATORY HYDRO-ELECTROLYTIC BALANCE. *(Sp.)* Crespo, E. E. ("A. Mann" Child. Hosp., San José, Costa Rica). *Rev Hosp Niños Alejandro Mann* 7(1/2):25-26, 1968.

8311 HEMORRHAGE DUE TO NEURINOMA OF THE SMALL INTESTINE. [CASE REPORT] *(Rum.)* Floares, G. (Inst. Med. Pharm., Iasi, Romania), C. Dolinescu and S. Mihalache. *Rev Med Chir* 72(4):1011-1014, 1968.

8312 ERRONEOUS DIAGNOSIS OF SUBCUTANEOUS RUPTURE OF THE DUODENUM. *(Rus.)* Leskov, V. N. (Chitinsk Med. Inst., USSR). *Klin Khir (Kiev)* (9):65-68, 1968.

8313 INTERNAL PARADUODENAL HERNIA IN INFANCY. [CASE REPORT] *(It.)* Defant, G. (Surg. Clin., U. Pavia, Italy) and A. de Medici. *Riv Chir Pediat* 10(4):444-461, 1968.

8314 REPEATED SURGERY IN NONACUTE RETARDED DEGENERATIVE INTESTINAL CONDITIONS. *(It.)* Ambrosi, F. (S. Spirito Hosp., Sassia, Italy). *Arch Atti Soc Ital Chir* 1(Part 1):715-784, 1968.

8315 TREATMENT OF COMPLICATED INTESTINAL OBSTRUCTIONS BY USE OF THE BAKER TUBE. [CASE REPORT] *(E.)* Behrend, A. (Albert Einstein Med. Ctr., Philadelphia, Pa.) and M. C. Piezas. *Int Surg* 52(1): 63-67, 1969.

8316 DUODENAL OBSTRUCTION IN THE FIRST WEEK OF LIFE. *(E.)* Dinner, M. (Johannesburg Group Teaching Hosp., S. Africa). *S Afr Med J* 43(21):625-627, 1969.

8317 AORTO-DUODENAL FISTULA: A COMPLICATION OF ABDOMINAL AORTIC GRAFTS. [CASE REPORT] *(E.)* Lise, M. (Natl. Heart Hosp., London, England) and M. H. Yacoub. *J Cardiovasc Surg* 10(2):172-177, 1969.

8318 PROLAPSE OF THE PREPYLORIC MUCOSA INTO THE DUODENAL BULB. *(Pol.)* Boroń, Z. (2nd Pediat. Clin., Wroclaw, Poland) and J. Ostrowska-Skóra. *Wiad Lek* 20(24):2219-2222, 1967.

8319 CONGENITAL MEMBRANE STENOSIS OF THE DUODENUM. *(Rus.)* Tomchin, Ia. N. (Kalinin Ctr. Child. Surg., USSR). *Vop Okhr Materin Dets* 12(8):76-78, 1967.

8320 RADICAL SURGICAL TREATMENT OF CANCER OF THE MAJOR DUODENAL PAPILLA IN CONDITIONS OF A REGIONAL HOSPITAL. [CASE REPORT] *(Rus.)* Kotik, P. V. (Novokakhovsk Munic. Hosp., USSR). *Klin Khir (Kiev)* (11):60-62, 1967.

8321 INTESTINAL PARALYSIS DUE TO CHANGES IN INTERNAL FLUIDS. *(Sp.)* Hutt, E. (Ferroviario Po lyclin., Rosario, Argentina), R. Steinsleger and J. A. Sugasti. *Rev Argent Cir* 12(4):175-176, 1967.

8322 LITTRE'S HERNIA. *(Rus.)* Izmailov, G. A. (Republic Hosp., Mordovian ASSR, USSR). *Klin Khir (Kiev)* (11):55-56, 1967.

8323 ADENOMA OF BRUNNER'S GLAND–A REPORT OF TWO CASES. *(E.)* Jain, K. L. (Joyce Green Hosp., Darford, England) and A. A. El Tayeb. *Brit J Surg* 55(2):119-120, 1968.

See also: 7719,7735,7763,7817,8101,8138,8206,8230,8342,8433,8447,8568,8573,8576,8838,8853

### 8324 HYPERTROPHY OF THE PYLORIC MUSCLE IN GASTRIC ULCERATION.

*(E.)* du Plessis, D. J. (Dept. Surg., U. Witwatersrand, Johannesburg, South Africa). *S Afr Med J* 43(35):1076-1078, 1969.

A study of 31 stomachs, resected for chronic gastric ulceration and without any history of ulceration, revealed a significant increase in thickness of the circular muscle at the pylorus. The mean circular muscle thickness of controls was 3.87 mm on the greater curvature and 5.47 mm in the gastric ulceration series. The thickness at the lesser curvature was 4.09 mm for controls and 6.32 mm for gastric ulcer. In the anterior wall the thickness was 4.10 mm in controls and 5.02 mm in ulcer patients. In the posterior wall the thicknesses were 4.06 and 5.43 mm, resp. On the greater curvature this was more prominent the closer the ulcer was to the pylorus. This muscle hypertrophy may be primary (and so the probable cause of the ulcer) or secondary to the ulcer. Because in these cases there was no history of pyloric obstruction before the onset of ulcer symptoms, it is assumed that the hypertrophied pylorus occurred secondary to the gastric ulceration. A case is reported in detail where the ulcer clearly preceded the development of the muscle hypertrophy. This phenomenon must be kept in mind when considering the pathogenesis and management of gastric ulceration.

### 8325 EXPERIMENTAL ULCERS IN CLOSED GASTRIC POUCHES.

*(E.)* Donnellan, M. J. (St. Vincent's Hosp., Sydney, Australia), F. H. Garlick and G. W. Milton. *Brit J Surg* 56(5):365-368, 1969.

Closed, denervated, gastric fundic pouches were placed s.c. in 13 dogs. All dogs with closed pouches ate less in the postoperative period and lost up to 4 kg in weight. In 9 of these pouches, ulceration or erosions developed. The fluid from these pouches had a high pepsin content (0.8-3.43, mean 2.16 mEq of tyrosine/min/ml aspirate) but only moderate acidity. The composition of the juice was similar to the juice of conventional Heidenhain pouches in which ulcers do not occur. The role of constant contact between the mucosa of the pouch and a juice rich in pepsin in the etiology of the ulcers is discussed. This experimental model has a lot in common with clinically occurring gastric ulcer and that further investigation is therefore warranted.

### 8326 GASTRIC SECRETION AND PEPTIC ULCER FOLLOWING PORTACAVAL SHUNT IN MAN.

*(E.)* Orloff, M. J. (Sch. Med., U. California, San Diego), J. G. Chandler, S. J. Alderman, J. E. Keiter and H. Rosen. *Ann Surg* 170(4):515-527, 1969.

Gastric secretion was studied in 10 normal volunteers, in 20 patients (33-62 yr old) with advanced but compensated hepatic cirrhosis and in 15 cirrhotic patients with portacaval shunts (8 side-to-side, 5 end-to-side and 2 splenorenal anastomoses) for bleeding esophageal varices. As a corollary to the secretion studies, peptic ulcer incidence was evaluated in 60 patients with portacaval shunts and 32 patients without shunts. Basal acid secretion was similar in normal individuals and shunted cirrhotic patients, but was significantly elevated in cirrhotic patients without shunts. Histamine stimulated gastric acid secretion in cirrhotic patients with and without shunts was not significantly different from that of normal subjects. Intestinal meal tests in normal subjects and unshunted cirrhotics produced a small but significant depression of gastric acid production, while in shunted cirrhotics, gastric acid secretion was prolonged and significantly increased (709% above the basal level). Peptic ulcer studies showed a 12% incidence in unshunted cirrhotics, and 27% in shunted cirrhotics. In the unshunted cirrhotics, the ulcers were located in the duodenum and of the chronic type; in 12 of 14 shunted patients, the ulcers were of the acute "stress" type and located in the stomach of 10 patients. Portacaval shunts unmask the intestinal phase of gastric secretion in humans and the resultant excessive production of acid may be responsible for the association of peptic ulcer and portacaval shunt if such an association exists.

### 8327 CLINICAL AND RADIOLOGICAL OBSERVATIONS OF PATIENTS AFTER VAGOTOMY IN COMBINATION WITH GASTRIC DRAINAGE.

*(Rus.)* Murav'ieva, L. A. (Yaroslav Med. Inst., USSR) and V. A. Zhegin. *Khirurgiia (Moskva)* (2):34-42, 1969.

Selective, unilateral and bilateral vagotomy in combination with pyloroplasty, gastroduodenostomy or sparing resection of the stomach were employed in ulcers of pyloroduodenal localization. The authors operated on 53 patients, aged 22-60 yr with four 30 yr long ulcerous anamnesis in most cases. In the overwhelming majority of patients after the operation there was a stable and significant (2.5-50 times) reduction of gastric secretion. The gastric motor and evacuatory functions were disrupted, whereas the functioning of the cardiac sphincter remained normal. The gastric mucosa thickened and dilation of the small intestine was noted, pronounced at the duodenal end and becoming insignificant in the ileum. In the first months after surgery the gastro-ileal reflex was absent or weak in most patients and the transverse folds were broad and widely separated. At a later time (1-4 yr) there was noted restoration of the motor function of the stomach and intestine; however, normalization of the mucosal relief occurred at a slower rate and not in all cases. All changes were commensurate with the extent of the vagotomy. Selective and unilateral vagotomy produced less pronounced changes, especially in the medial and distal areas of the small intestine. Postoperative complications were noted in 15 cases; gastric atonia with disturbed evacuation during the first 3 months in 3 and diarrhea in 3 patients. However, these rapidly disappeared, and there were no fatalities. Excellent long-term results were seen in 13 of the 26 cases, good results in 10, satisfactory in 2 and a relapse in 1 patient.

### 8328 THE EFFECT OF VAGOTOMY AND PYLOROPLASTY IN SEROTONIN-INDUCED GASTRIC ULCERATIONS.

*(E.)* Lulu, D. J. (VA Hosp., Des Moines, Iowa) and L. Lince. *J Surg Res* 9(9):547-549, 1969.

Twenty Wistar rats (approximately 240 g each) received 25 mg/kg of 5 hydroxytryptamine i.p. A second dose was given after 24 hr if the animal survived. Ten of the animals had total abdominal vagotomies along with Heinecke-Mikulicz pyloroplasties some time before to the injections. Necrotizing ulcerative gastritis was present to a similar extent in both groups. Bilateral subdiaphragmatic truncal vagotomy and pyloroplasty had no protective effect on serotonin-induced gastric ulceration in the rat.

### 8329 CLINICAL COURSE AFTER GASTRIC FREEZING: LONG-TERM FOLLOW-UP OF 74 PATIENTS AND A REVIEW OF THE LITERATURE.

*(E.)* McIntyre, J. A. (St. Joseph's Hosp., Toronto, Canada), S. Jalil and M. Deitel. *Canad J Surg* 12(2):210-221, 1969.

Gastric freezing for duodenal ulcer was done between May 1963 and June 1964 in 85 patients. The procedure was not continued because the short duration of gastric secretory depression indicated that gastric freezing would not cure gastric ulcer. Follow-up for 3.8-4.9 yr has been possible for 74 patients. Thirty-one patients have required surgery for unrelieved or recurrent symptoms, 17 have had marked or complete relief, 9 have had only moderate improvement, and 17 have had slight or no improvement. Complications of freezing consisted of bleeding from the upper gastrointestinal tract in 5 (5.9%) (2 of these vomited small quantities of blood, but did not require a transfusion, while 3 suffered more severe blood loss and required several transfusions; all 3 made an excellent recovery and had no further bleeding); gastric ulcer in 3 (a 4th developed a gastric ulcer 3.8 yr after freezing), there was no instance of perforation of the stomach; circulatory collapse occurred in 2 patients during freezing; elevated serum amylase values were seen in 3 but none had clinical signs of pancreatitis; increased BSP retention was present in 4 and elevated SGOT levels in 3 but no other signs of liver dysfunction. In 53 patients electrocardiograms were made before, during, and after freezing (47 were normal and 6 abnormal before freezing). Seventeen (32%) had no changes during freezing while 36 (68%) had abnormal tracings during the procedure but all except 1 reverted to their previous patterns. None of the patients died. Gastric freezing, in spite of the low morbidity and mortality, cannot be considered in the treatment of gastric ulcer because of the high incidence of recurrence.

### 8330 PERFORATED PEPTIC ULCER: MORTALITY AND MORBIDITY IN 603 CASES. *(E.)*

Hennessy, E. (Royal Newcastle Hosp., Australia). *Aust New Zeal J Surg* 38(3):243-252, 1969.

The clinical records of patients who died or were discharged from a hospital in the period 1944-1964 with a final diagnosis of perforated peptic ulcer were reviewed. Diagnoses had to be supported by at least: a) being seen at operation, b) seen at autopsy, or c) clinical presentation with free air seen under the diaphragm in a plain skiagram of the abdomen. Of the 603 instances, 300 (49.8%) were duodenal, 172 (28.5%) were pyloric, 108 (17.9%) were gastric, 5 (0.8%) were anastomotic and 18 (3%) were unknown. When the 21 yr period was divided into three 7 yr periods it was observed that a total of 149 occurred in 1944-50, 204 in 1951-57, and 250 in 1958-64. The rates/1000 admissions in these periods were 2.7, 2.6, and 2.4, resp. The male:female ratio was 5.3:1, and the peak incidence in males in the 40-49 age group and that in females a decade earlier. There was a rising proportion of females: 6%, 15.7%, and 22% in the three 7 yr periods, resp.

### 8331 FACTORS INFLUENCING THE TREATMENT OF PERFORATED DUODENAL ULCER. *(E.)*

Mark, J. B. D. (Stanford U. Sch. Med., Palo Alto, Calif.). *Surg Gynec Obstet* 129(2):325-330, 1969.

The records of 75 patients (56 males, 19 females, mean age 57.8 yr) with perforated duodenal ulcer, occurring during an 8 yr period, have been reviewed. Two-thirds had had ulcer symptoms. Four-ninths had duodenal ulcers on prior upper gastrointestinal roentgenographic studies. Thirty-six of the 41 patients examined had free air under the diaphragm on chest or abdominal X-rays at the time of perforation. Culture of intraperitoneal fluid was positive in 22 of 64 patients in whom cultures were made. Thirty of the 75 patients had normal amylase activities. Fifty-two of the patients were treated by closure of the ulcer, with 7 deaths. Fifteen patients underwent primary vagotomy and pyloroplasty, with no deaths. Four primary gastrectomies were done, also without mortality. Of 4 patients, in the 9th and 10th decades of life, who were treated without operation, 2 died. The average age of all the patients who died was 78.6 yr. Five of the 16 patients without prior symptoms and 17 of the 29 with prior symptoms who survived simple closure required subsequent surgery. Vagotomy with pyloroplasty is recommended as the operation of choice for perforated duodenal ulcer unless specific contraindications exist.

### 8332 GASTRIC SECRETORY PATTERNS FOLLOWING SELECTIVE VAGOTOMY AND DRAINAGE IN PATIENTS WITH DUODENAL ULCER. *(E.)*

Kallehauge, H. E. (Munic. Hosp., Copenhagen, Denmark) and E. Amdrup. *Acta Chir Scand* (Suppl.)396:46-59, 1969.

A consecutive series of 130 patients with duodenal ulcer treated by selective vagotomy and drainage was followed up approximately 1 yr after the operation. When the results of the clinical follow-up and the results of gastric secretory tests given preoperatively 6 or more weeks postoperatively were compared, it was found that even the early postoperative tests supplied information of prognostic value. The most characteristic result in patients with dyspepsia or recurrent ulcer was a high fasting secretion (more than 2.5 mEq/15 min in the fasting aspirate) and a high basal secretion (more than 1.5 mEq/hr). These secretory patterns were also found in half of these patients in the immediate postoperative tests. At that time the patients were symptom free, but their results even than differed from those of the other symptomfree patients. At the reoperation the pathology was dominated by definite signs of an insufficient drainage. The correlation with the insulin response was far more uncertain, 2 patients with recurrent ulcer showing a negative insulin test, 2 a late positive and 1 an early positive insulin test. Insufficient drainage was a more substantial cause of recurrent ulcer and dyspepsia than inadequate vagotomy.

### 8333 SELECTIVE VAGOTOMY COMBINED WITH DRAINAGE PROCEDURE IN TREATMENT OF DUODENAL ULCER. SELECTIVE ANTERIOR AND TOTAL POSTERIOR VAGOTOMY COMPARED WITH BILATERAL SELECTIVE VAGOTOMY IN 116 PATIENTS.

*(E.)* Marckmann, A. (Munic. Hosp., Copenhagen, Denmark), H. Baden and E. Amdrup. *Acta Chir Scand* (Suppl.)396:41-45, 1969.

Selective anterior and total posterior vagotomy with gastric drainage was performed in 58 patients with duodenal ulcer. Another 58 patients with duodenal ulcer, comparable with the latter, were treated by bilateral selective vagotomy and gastric drainage. There was 1 operative death, and the early postoperative complications were few. The insulin test showed that bilateral selective vagotomy significantly resulted in a greater number of complete vagotomies than did selective anterior and total posterior vagotomy. Post-vagotomy diarrhea occurred in 2 of 58 selective anterior and total posterior vagotomies, but no case of diarrhea was seen after bilateral selective vagotomy. Only 1 patient suffered from a severe postoperative dumping syndrome, but several patients had milder dumping symptoms. Recurrent ulcer and/or stenosis indicated reoperation in 5-7% of the patients.

**8334 THE SURGICAL TREATMENT OF PYLORIC OBSTRUCTION DUE TO PEPTIC ULCERATION.** *(E.)* Gillett, D. J. (Repatriation Gen. Hosp., Concord, Australia) and M. T. Pheils. *Aust New Zeal J Surg* 38(3): 252-255, 1969.

An unselected group of 937 cases from 2000 operated on for peptic ulceration was analyzed. Pyloric obstruction was present in 237 of 937. These operations included 143 Polya gastrectomies, 9 Billroth I gastrectomies, 54 vagotomies and drainages, and 26 simple gastroenterostomies. The operative mortality was 6 (2.5%): Polya operation was followed by 3 deaths in 143, Billroth I by 1 death in 9, vagotomy and drainage by 2 deaths in 54, and gastroenterostomy by no deaths in 26. During the period of follow-up (minimum 2 yr), 31 patients died, and 160 of the 194 survivors were interviewed: a follow-up rate of 85%. Of the patients treated for pyloric stenosis 96.5% had a satisfactory result and 89% of those treated for peptic ulcer in general. The number of patients with unsatisfactory results were 1 (after Billroth II), 3 (after Polya), 1 (after gastroenterostomy) and 1 (after vagotomy and gastroenterostomy). In general vagotomy and drainage gave much better results in the presence of pyloric obstruction than in the treatment of peptic ulcer in general. The results of Polya gastrectomy were marginally worse. The risk of stomal ulceration is the major difference: 2% in the presence of pyloric obstruction and 8% in the whole series of peptic ulcers. The incidence of stomal ulcer after gastrectomy is slightly increased when pyloric obstruction is present. Vagotomy with drainage may be the treatment of choice in pyloric obstruction.

**8335 GASTRIC AND DUODENAL ULCER. THE ASSOCIATION BETWEEN ASPIRIN INGESTION, SMOKING AND FAMILY HISTORY OF ULCER.** *(E.)* Gillies, M. A. (Royal Prince Alfred Hosp., Sydney, Australia) and A. Skyring. *Med J Aust* 2(6):280-285, 1969.

In this study, 1405 workers from 3 organizations–950 men and 455 women, representing all age and social groups–were questioned about aspirin, smoking, and family and personal history of ulcer. Forty-eight persons had a duodenal ulcer, and 10 had a gastric ulcer. These were compared with previously reported in-patients with gastric (100) and duodenal (50) ulcer. The entire ulcer population was compared with the 1329 workers without ulcer. The in-patient findings reported in 1968 were substantiated; thus 63 of the 110 patients with gastric ulcer, compared with 112 of 1329 workers ($P < 0.001$), took aspirin-containing preparations each day; 87 of the patients with gastric ulcers compared with 485 of 1095 workers ($P < 0.001$) smoked 10 or more cigarettes/day; and 21 persons with gastric ulcer, compared with 39 of 1095 workers ($P < 0.05$) had a family history of ulcer. A family history of ulcer and aspirin ingestion were also more common amongst the 98 patients with duodenal ulcers than amongst the workers. The strength of association between gastric and duodenal ulcer and family history of ulcer was identical; aspirin ingestion was strongly associated with only gastric ulcer. The prevalence of aspirin ingestion was 9.8% for the entire working population, was greater among women than men ($P < 0.001$), increased with age, and was greater among persons of low than among those of high social class ($P < 0.001$). Some gastric ulcers are likely to be causally associated with aspirin ingestion, and that such ulcers will be found most frequently among middle-aged women of relatively low social status.

**8336 CONCOMITANT GASTRIC AND DUODENAL ULCERS.** *(E.)* Bateson, E. M. (U. Hosp. West Indies, Kingston, Jamaica). *Brit J Radiol* 42(500):598-604, 1969.

Three thousand eight hundred consecutive barium meal examinations performed during a 6 yr period were analyzed. A high percentage of the cases with gastric ulcers were found to have concomitant duodenal ulcers. A duodenal ulcer was demonstrated in 1077 examinations. Of 130 studies demonstrating a gastric ulcer, there were 41 without concomitant lesions, 81 cases of gastric and duodenal ulcers and 8 cases of gastric ulcer and hypertrophic pyloric stenosis. The male to female ratios in ulcerative disease were 3.4:1 for duodenal ulcers, 2.2:1 for solitary gastric ulcers and 3:1 for concomitant gastric and duodenal ulcers. Duodenal ulcers, gastric ulcer ratios were 9:1 when concomitant cases were included and 22:1 when they were excluded. Duodenal ulcers had a peak occurrence between 30 and 60 yr, concomitant gastric and duodenal ulcers between 40 and 60 yr and gastric ulcers between 50 and 70 yr.

**8337 THE EFFECT OF ESTRIOL SUCCINATE UPON HEALING OF DUODENAL ULCER: A CONTROLLED STUDY.** *(E.)* Siurala, M. (2nd Dept. Med., U. Helsinki, Finland), K. Varis, O. Gorbatow, P. Kause, M. Laulajainen and L. O. Nyberg. *Scand J Gastroent* 4(5):469-475, 1969.

The effect of estriol-16, 17-dihemisuccinate, an estrogen without significant feminizing side-effects, on the healing of duodenal ulcer was studied, using a double-blind method. Of 43 patients 18 received 10 mg of the drug daily and 25 received placebo tablets during 2 months. There was no statistical difference in the disappearance of subjective complaints. However, roentgenologically improvement of the ulcer was noted in 13 (6 healed, 7 improved) out of 16 treated and in 12 (7 healed, 5 improved) out of 25 controls, the difference being statistically significant ($P = 0.01\text{-}0.02$). Thirteen of the 25 controls were unchanged.

**8338 RESPONSE TO INSULIN OF THE INTACT STOMACH IN PATIENTS WITH DUODENAL**

ULCER. *(E.)* Gillespie, G. (Western Infirm., Glasgow, Scotland), I. E. Gillespie and A. W. Kay. *Gut* 10(9):744-748, 1969.

Insulin tests were performed on 47 duodenal ulcer patients with intact stomachs. Only 20 had a positive response to the test as judged to be positive by the criteria of Hollander in the first 45 min after the insulin. Twenty more became positive between 45 and 60 min, and in 5 only in the second hr. Surprisingly, 2 patients had apparently negative responses to the insulin. While caution is necessary in comparing responses of the intact stomach with those after vagotomy operations, the occurrence of the 'late positive' and negative patterns of response to insulin in the intact stomach may give rise to reservations about the interpretation of these types of response after vagotomy.

8339 PEPTIC ULCERS IN ATYPICAL LOCATIONS. [CASE REPORT] *(Por.)* San Juan, F. (Hosp. State Employees, Rio de Janeiro, Brazil), M. Treiger and J. I. C. Rabelo. *Hospital (Rio)* 74(2):433-446, 1968.

8340 STOMACH ULCER SURGERY. *(Por.)* Paulino, F. (Med. Fac., U. Federal Goias, Brazil). *Rev Goiana Med* 14(1/2):117-121, 1968.

8341 PERFORATED ULCERS OF THE STOMACH AND DUODENUM. *(Por.)* Ribeiro, E. B. (São Paulo Acad. Med., Brazil). *An Paul Med Cir* 95(2):125-128, 1968.

8342 COEXISTENCE OF A PEPTIC ULCER IN CONGENITAL DUODENAL DIVERTICULUM WITH BLEEDING DUODENAL ULCER. *(Pol.)* Iwaniuk, J. (Munic. Hosp., Biala Podlaska, Poland). *Pol Tyg Lek* 23(32):1205-1206, 1968.

8343 GASTRODUODENAL PEPTIC ULCER. INDICATIONS AND PREFERRED SURGICAL TECHNIQUE. *(Sp.)* Peña y de la Pena, E. (Cent. Milit. Hosp., Mexico). *Prensa Med Mex* 32(11/12):350-353, 1967.

8344 VAGOTOMY AND PYLORIC DRAINAGE FOR CHRONIC DUODENAL ULCER. *(E.)* Schofield, P. F. (Royal Infirm., Manchester, England), E. J. Watson-Williams and V. F. Sorrell. *Surgery* 95:615-623, 1967.

8345 DUODENAL ULCER–THE SURGEON'S DILEMMA. *(E.)* Macleod, I. B. (Dept. Clin. Surg., U. Edinburgh, Scotland). *J Roy Coll Surg Edinb* 12(5):285-307, 1967.

8346 SURGICAL TREATMENT OF PEPTIC ULCER IN THE ELDERLY. *(E.)* Litwin, M. S. (Tulane U. Sch. Med., New Orleans, La.). *J Louisiana Med Soc* 120(1):10-16, 1968.

8347 DUMPING SYNDROME. SURGICAL TREATMENT. *(Sp.)* Pena y de la Pena, E. (Cent. Milit. Hosp., Mexico). *Prensa Med Mex* 32(5/6):170-177, 1967.

8348 PERFORATED PEPTIC ULCER IN DUNEDIN AND OXFORD. *(E.)* Fraenkel, G. J. (U. Otago Med. Sch., Dunedin, New Zealand) and A. M. Clarke. *Aust New Zeal J Surg* 37(2):190-193, 1967.

8349 THE INCIDENCE OF PARASITES IN GASTRIC AND DUODENAL ULCER. *(Pol.)* Bojanowicz, K. (Acad. Med., Lodz, Poland), A. Zubowski and J. Glebski. *Wiad Parazyt* 15(2):171-179, 1969.

8350 SOME ASPECTS OF DUODENAL ULCER IN DAR ES SALAAM. [CASE REPORT] *(E.)* Nhonoli, A. M. (Muhimbili Hosp., Dar es Salaam, Tanzania). *E Afr Med J* 46(1):64-66, 1969.

8351 EFFECT OF A SINGLE DOSE OF PHENTOLAMINE AND MJ 1999 ON INDOMETHACIN-INDUCED GASTRIC ULCER IN RATS. *(E.)* Djahanguiri, B. (Fac. Med., U. Tehran, Iran). *Israel J Med Sci* 5(3):417-418, 1969.

8352 NON-SPECIFIC JEJUNAL ULCER. REPORT OF A CASE AND REVIEW. *(E.)* Howell, R. A. Jr. (Bennettsville, S. C.), J. K. Owens and J. C. McAlpine. *J S Carolina Med Ass* 65(3):81-86, 1969.

8353 PROBLEM OF PEPTIC ULCERS IN CHILDHOOD. *(Cz.)* Chalupa, J. (Pediat. Hosp., Karlovy Vary, Czechoslovakia). *Cesk Pediat* 22(12):1086-1090, 1967.

8354 CLINICAL EXPERIENCE IN GASTROJEJUNODUODENOPLASTY. *(Rus.)* Verkhratskii, S. A. (Ivano-Frankovsk Med. Inst., USSR). *Klin Khir (Kiev)* (10):90-91, 1967.

8355 TECHNIQUE AND THERAPEUTIC EFFECTS OF UROGASTRONE, AN ANTI-ULCER HORMONE. *(Fr.)* La Barre, J. (Pharmacol. Lab., U. Brussels, Belgium) and T. Malfliet. *Bruxelles Med* 47(48):1133-1142, 1967.

8356 ADDISON'S DISEASE AND GASTRIC AND DUODENAL ULCER. *(Pol.)* Bojanowicz, K. (1st Clin. Intern. Dis., Lodz, Poland) and A. Zubowski. *Wiad Lek* 20(20):1887-1890, 1967.

8357 REPEATED OCCURRENCE OF LARGE INTESTINE PEPTIC ULCERS IN A SHORT TIME. [CASE REPORT] *(Rus.)* Spivak, V. P. (Nikopolskoi 1st Munic. Hosp., USSR) and Ia. L. Tsukerman. *Klin Khir (Kiev)* (11):62-63, 1967.

8358 LONG TERM EFFECTS OF DUODENAL ULCER TREATMENT BY CONVENTIONAL GASTRECTOMY, STATISTICAL STUDY OF 100 CASES. *(Sp.)* Loyudice, F. (Italian Hosp., Buenos Aires, Argentina), E. Sivori and J. A. Sivori. *Rev Argent Cir* 12(4):171-172, 1967.

8359 SIMULTANEOUS GASTRIC AND DUODENAL ULCER. *(Ser.)* Prica, M. (Med. Fac., Rijeka, Yugoslavia). *Acta Fac Med Fluminen* 2(1):123-127, 1967.

8360 A STUDY OF THE ACTION OF IMMETROPAN IN TREATMENT OF GASTRODUODENAL

ULCERS USING AN ENDORADIO TUBE OR HEIDELBERG'S CAPSULE. [OXYPYRRONIUM BROMIDE (L.3055):DAUSSE LAB.] *(Fr.)* Andre, L. J. (Intern. Med. Svc., Pierre Marie Curie Ctr., Alger, Algeria), S. Zerdani, M. A. Dahmane, H. Bounedjar, M. Hartani and M. A. Merioua. *Tunisie Med* 45(5): 367-371, 1967.

8361 VAGOTOMY AND PYLOROPLASTY IN THE TREATMENT OF DUODENAL ULCERS. *(Ser.)* Frančišković, V. ("Dr. Z. Kucic" Hosp., Yugoslavia), B. Budisavljević and A. Šepić. *Acta Fac Med Fluminen* 2(1): 161-169, 1967.

8362 BLOOD COAGULATING SYSTEM IN PATIENTS WITH COMPLICATED FORMS OF STOMACH AND DUODENAL ULCERS. *(Rus.)* Kal'chenko, L. I. (Kiev Inst. Postgrad. Med., USSR), F. P. Nechiporenko and P. V. Lys. *Klin Khir (Kiev)* (12):56-63, 1967.

8363 SWEAT TEST IN ULCER PATIENTS. [CASE REPORT] *(Fr.)* Larbaoui, D., J. Zigliara, P. Chaulet, G. Illoui and T. Belhammou. *Tunisie Med* 45(5):351-357, 1967.

8364 ULCERS IN INFANTS AND CHILDREN AND THE SURGICAL IMPLICATIONS. [CASE REPORT] *(Fr.)* Aboulola, M., R. Bouayad Agha and M. Bekkat. *Tunisie Med* 45(5):343-349, 1967.

8365 GASTRECTOMY WITH RECOVERY OF DUODENAL CONTINUITY IN THE TREATMENT OF GASTRO-DUODENAL ULCERS. *(Fr.)* Mansouri, H. (Hosp. Ctr. U. Alger, Algeria), A. Haeffner, G. Illoul, A. S. Bendali, M. Seddik and F. Hassan-Khodja. *Tunisie Med* 45(5): 321-341, 1967.

8366 MEDICAL TREATMENT OF DUODENAL ULCERS IN ALGERIANS. CRITICAL ANALYSIS OF RESULTS. *(Fr.)* Leutenegger, M. (Med. Clin., Alger, Algeria), G. Illoul, M. Ait Mesbah, A. Baba Ameur, A. Bentounsi and A. Ziari. *Tunisie Med* 45(5):307-319, 1967.

8367 PERFORATION OF GASTRIC ULCER IN THE THIRD TRIMESTER OF A TWIN PREGNANCY. *(Pol.)* Boni, L. (Dist. Maternity Hosp., Makowie Podhalanskie, Poland) and A. Balasz. *Wiad Lek* 20(20):1891-1892, 1967.

8368 DIGESTIVE PATHOLOGY IN MAN BETWEEN 40 AND 50 YEARS OF AGE. 1. THE DEVELOPMENT OF VIRAL HEPATITIS AS A FUNCTION OF AGE. 2. GASTRODUODENAL ULCER DURING THE FIFTH DECADE. *(Fr.)* Urbain (Milit. Hosp., Brussels, Belgium), Wilmet, Pasleau and Tackels. *Acta Belg Milit* 14(1):227-245, 1968.

8369 INTESTINE TRANSPLANTATION ULCER AND STENOSIS AFTER GASTRECTOMY AND SMALL INTESTINE PLASTIC SURGERY. [CASE REPORT] *(Rus.)* Ivanov, S. S. (Orlov Regional Hosp., USSR) and V. A. Zaikin. *Klin Khir (Kiev)* (10):68-69, 1967.

8370 RETROPERITONEAL PHLEGMON IN DUODENUM STUMP SUTURE INCOMPETENCE. [CASE REPORT] *(Rus.)* Tsyganenko, I. T. (Kiev Med. Inst., USSR). *Klin Khir (Kiev)* (10):69-71, 1967.

8371 ANALYTIC HISTOLOGICAL STUDY OF AN ULCER IN EARLY CARCINOMA OF THE STOMACH. *(Jap.)* Dochi, K. *Jap J Cancer Clin* 13(9): 640-657, 1967.

8372 REPEATED SURGERY FOR VAGOTOMY INEFFICIENCY IN THE TREATMENT OF GASTRIC AND DUODENAL ULCERS. *(It.)* Grassi, G. (Charitable Inst. S. Spirito, Rome, Italy). *Arch Atti Soc Ital Chir* 1(Part 1):484-518, 1968.

8373 PEAN ANASTOMOSIS AFTER GASTRECTOMY FOR ULCER IN THE CIMPINA HOSPITAL. *(Rum.)* Dimitriu, A. (Cimpina Hosp., Romania), C. Răduţă, I. Roşca and V. Botescu. *Rev Med Chir* 72(4):905-910, 1968.

8374 THE TREATMENT OF PATIENTS WITH PEPTIC ULCERS BY A METHOD OF TEMPORARY INOPERATIVE BYPASS OF THE STOMACH AND DUODENUM. *(Rus.)* Berkutov, A. N. (S. M. Kirov Milit. Med. Acad., Leningrad, USSR) and L. N. Felitsyn. *Vestn Khir Grekov* 103(7):29-34, 1969.

8375 INDICATED LIVER FUNCTION WITH BSF CLEARANCE AND OTHER METHODS IN PATIENTS WITH PEPTIC ULCERS. *(It.)* Romeo, S. (Inst. Semeiotic Surg., U. Catania, Italy), A. Bordi and G. Gruttadauria. *Chir Gastroent* 2(2):131-140, 1968.

8376 VAGOTOMY. II. PHYSIOLOGICAL BASES FOR VAGOTOMY. *(Sp.)* Landa, L. (Gen. Hosp., Mexico). *Gac Med Mex* 98(10):1322-1326, 1968.

8377 VAGOTOMY. III. INDICATIONS FOR COMPLETE OR SELECTIVE VAGOTOMY. *(Sp.)* Campuzano, M. (Natl. Inst. Nutrit., Mexico). *Gac Med Mex* 98(10):1321-1330, 1968.

8378 VAGOTOMY. IV. PHYSIOLOGICAL REPERCUSSIONS OF VAGOTOMIES. *(Sp.)* Villalobos, J. J. (Natl. Inst. Nutrit., Mexico), S. Cardenas and R. Santoyo. *Gac Med Mex* 98(10):1331-1348, 1968.

8379 CHRONIC OBSTRUCTIVE EMPHYSEMA IN ULCER PATIENTS. *(It.)* D'Anelli, A. (Asti City Hosp., Italy), N. Proscia, F. Sorisio and C. A. Caratti. *Arch Sci Med* 125(5):191-194, 1968.

8380 REPEATED PROFUSE ULCERATIVE HEMORRHAGING IN THE DUODENUM. *(Rus.)* Kholiavko, V. K. (Kirovograd Regional Hosp., USSR). *Klin Khir (Kiev)* (3):69-70, 1968.

8381 PERFORATION OF PEPTIC ULCERS IN CHILDREN AND ADOLESCENTS. *(Rus.)* Petrov, A. F. (Belgorod Regional Hosp., USSR). *Klin Khir (Kiev)* (3):73-74, 1968.

8382 TREATMENT OF THE POSTGASTRECTOMY EXTERNAL DUODENAL FISTULA. *(E.)* de Resende Alves, J. G. (Dept. Surg., Federal U. Minas, Gerais, Brazil). *Int Surg* 49(2):248-251, 1968.

8383 GASTRIC ULCERS IN SWINE. A POTENTIAL MODEL FOR STUDY OF GASTRIC ULCER IN MAN. *(E.)* Fuller, D. E. (St. Paul Hosp., Dallas, Texas) and D. E. Boenker. *JAMA* 204(8):714-716, 1968.

8384 PILOT TRIAL OF A COLLOIDAL BISMUTH PREPARATION IN THE TREATMENT OF PEPTIC ULCER. *(E.)* Weiss, G. (Dept. Med., U. Pretoria, S. Africa) and J. C. Kallmeyer. *S Afr Med J* 41(13):317-320, 1968.

8385 MEDICAL TREATMENT OF PEPTIC ULCER. *(E.)* Perkel, L. L. (Bergen Pines County Hosp., Paramus, N. J.). *J Amer Osteopath Ass* 65(6):242-248, 1968.

8386 MAMMANA'S METHOD OF PYLORECTOMY. A STUDY OF 10 CASES. *(Por.)* Cordeiro, A. K. (Cent. Hosp. Santa Casa Misericórdia, São Paulo, Brazil). *Arq Hosp Santa Casa* 14(4):201-218, 1968.

8387 VAGOTOMY ASSOCIATED WITH ANTRECTOMY IN BILLROTH I SURGERY FOR DUODENAL ULCERS. *(Ser.)* Vujadinović, B. (Sch. Med., U. Belgrade, Yugoslavia). *Srpski Arh Celok Lek* 96(10):957-960, 1968.

8388 A CASE OF STOMACH ULCER PENETRATION INTO THE SMALL INTESTINE. *(Rus.)* Riazantsev, V. I. (1st Surg. Dept. 9th Dneprodzerzhinsk Hosp., USSR). *Klin Khir (Kiev)* (5):81, 1969.

8389 ACUTE GASTRODUODENAL BLEEDING DUE TO ULCERS AND ITS SURGICAL TREATMENT. *(Rus.)* Mazurik, M. F. (Poltava Regional Hosp., USSR). *Klin Khir (Kiev)* (5):57-59, 1969.

8390 LATE RESULTS OF HEALTH-RESORT TREATMENT OF PATIENTS WITH A HISTORY OF GASTRECTOMY FOR ULCERS. *(Rus.)* Blinder, M. A. (Gorky Sanatorium, Odessa, USSR) and K. M. Koifman. *Vrach Delo* 50(5):34-36, 1969.

8391 USE OF MEPROBAMATE FOR CONTROL OF STRESS ASSOCIATED WITH "INTRACTABLE" PEPTIC ULCER. *(E.)* Bodi, T. (Lankenau Hosp., Philadelphia, Pa.). *Curr Ther Res* 11(5):216-226, 1969.

8392 UPPER GASTROINTESTINAL BLEEDING WITH SPECIAL REFERENCE TO PEPTIC ULCER. *(E.)* Devitt, J. E. (Ottawa Civic Hosp., Canada). *Gastroenterology* 57(1):89-94, 1969.

8393 MINERAL-CORTICOID FUNCTION OF THE ADRENAL CORTEX IN PEPTIC ULCERS. *(Rus.)* Gorshkov, V. A. (Leningrad Sanit. Hyg. Med. Inst., USSR). *Klin Med (Moskva)* 47(4):33-37, 1969.

8394 THE ROLE OF VAGOTOMY IN THE SURGICAL TREATMENT OF PEPTIC ULCERS. *(E.)* Dragstedt, L. R. (Coll. Med. U. Florida, Gainesville). *Int Surg* 52(2):79-89, 1969.

8395 SURGICAL TREATMENT OF PEPTIC ULCER. *(E.)* Lauer, P. R. (San Francisco Gen. Hosp., Calif.). *Amer J Surg* 118(4):587-590, 1969.

8396 A MODERN METHOD OF DETERMINING GASTRIC ACIDITY IN GASTRO-DUODENAL ULCER PATIENTS: THE ENDORADIO TUBE OR HEIDELBERG CAPSULE. *(Fr.)* Merioua, M. A. (Dept. Med. Pathol. U. Alger, Algeria), L. J. Andre, S. Zerdani, M. A. Dahmane, H. Bounedjar and M. Hartani. *Tunisie Med* 45(5):359-365, 1967.

8397 RETROGRADE JEJUNOGASTRIC INTUSSUSCEPTION. [CASE REPORT] *(E.)* Flower, C. D. R. (Toronto Western Hosp., Canada), J. C. Lanskail, and D. V. McFarlane. *Canad Med Ass J* 101(1):47-48, 1969.

8398 TUBES FOR GASTRIC ASPIRATION AFTER VAGOTOMY. *(E.)* Hamer, D. (Hammersmith Hosp., London, England), J. M. Wellwood and A. G. Cox. *Brit J Surg* 56(4):270-274, 1969.

8399 VAGOTOMY FOR CHRONIC PEPTIC ULCER. *(E.)* Dowling, B. *Med Rev* 1(7):8-10, 1969.

8400 SURGERY OF DUODENAL ULCER. [CASE REPORT] *(Por.)* Galvao, L. (I.A.P.C., Rio de Janeiro, Brazil). *Rev Ass Med Minas Gerais* 20(1):9-14, 1969.

8401 MANAGEMENT OF PERFORATED PEPTIC ULCER. [CASE REPORT] *(Por.)* Siqueira, J. T. (Emergency Hosp., Belo Horizonte, Brazil). *Rev Ass Med Minas Gerais* 20(1):15-20, 1969.

8402 SOME ASPECTS OF EPIDEMIOLOGY OF PEPTIC ULCER IN ASSAM. *(E.)* Goswami, B. M. (Med. Coll., Assam, India) and K. Barua. *J Indian Med Ass* 52(7):322-325, 1969.

8403 POSTOPERATIVE PEPTIC ULCER AND ITS NONACUTE COMPLICATIONS. *(It.)* Ruggieri, E. (Inst. Gen. Surg. Clin., U. Naples, Italy) and R. Docimo. *Arch Atti Soc Ital Chir* 1(Part 1):335-380, 1968.

See also: 7745,7822,7838,7855,8168,8834,8865

8404 **THE EFFECT OF ACTH UPON PATIENTS HAVING REGIONAL ENTERITIS.** *(E.)* Hanson, K. C. (Duke U. Med. Ctr., Durham, N. C.), H. Maizel and J. M. Ruffin. *Southern Med J* 62(5):532-534, 1969.

The clinical course of 66 patients who had 100 hsopital admissions for the treatment of regional enteritis with ACTH (20 or 40 U for 5-7 days either as a continuous 20 hr i.v. drip or i.m. twice daily) has been reviewed. In 86 cases the patient was symptom-free at discharge, and 11 were markedly improved. During a 6-12 month follow-up, only 74% were considered significantly improved as compared with 92% at the end of the first month. Hospitalization was required for 24 cases during the first year, when they were treated with ACTH. In addition, 16 patients were operated on in the first year and in all but 1, resection of the diseased area with an end-to-end anastomosis was carried out. Follow-ups were made for a 12 month period of an additional 50 patients who had had a resection of the ileum for regional enteritis. Improvement occurred in 30 patients, 10 patients were hospitalized for a severe recurrence of the disease and 10 required further surgical treatment. ACTH followed by oral steroids is definitely indicated in the treatment of regional enteritis.

8405 **CHANGING CONCEPTS IN CROHN'S DISEASE.** *(E.)* Lennard-Jones, J. E. (U. Coll. Hosp., London, England) and B. C. Morson. *Disease A Month* August:3-37, 1969.

8406 **PRESENCE OF INTRANUCLEAR INCLUSION BODIES IN PROLIFERATIVE ILEITIS OF THE HAMSTER *(MESOCRICETUS AURATUS)*. A PRELIMINARY REPORT.** *(E.)* Lussier, G. (Inst. Microbiol. Hyg., U. Montreal, Canada) and V. Pavilanis. *Lab Anim Care* 19(3):387-390, 1969.

8407 **REGIONAL ENTERITIS.** *(Rev.)(E.)* Law, D. H. (Vanderbilt U. Sch. Med., Nashville, Tenn.). *Gastroenterology* 56(6):1086-1110, 1969.

8408 **PERFORATION AND PERITONITIS IN REGIONAL ENTERITIS. [CASE REPORT]** *(E.)* Graham, P. A. (Walter Reed Army Med. Ctr., Washington, D. C.) and J. H. Baugh. *Amer J Surg* 115(6):856-860, 1968.

See also: 8459,8547

## Malabsorption

### 8409 GLUCOSE-GALACTOSE MALABSORPTION. A CLINICAL STUDY OF 6 CASES. *(E.)*

Meeuwisse, G. W. (Dept. Pediat., U. Lund, Sweden) and K. Melin. *Acta Paediat Scand* Suppl. 188:1-18, 1969.

The histories of 6 cases, 2 male and 4 female, with glucose-galactose malabsorption were reviewed: 4 survived and are in good general health on a diet with a reduced carbohydrate content; 1 died at 2 months with severe malnutrition due to intractible diarrhea before diagnosis. The other patient who died was diagnosed and treated from the neonatal period and was progressing until *Candida albicans* infection occurred followed by death at 3 months with agammaglobulinemia. One patient is now a woman of 41. The main symptoms are diarrhea from birth, dehydration and malnutrition. Glucose is found in the watery stools and there is also a slight glucosuria. Hyperosmolar serum is often seen. Two patients, not those treated at an early stage, developed renal concrements probably owing to the long lasting water loss with the stools. Treatment during the first months consisted of replacement of dietary carbohydrates by fructose. Although the basis biochemical disorder lasts throughout life, limited amounts of starch and milk can be introduced later in infancy. Some absorption of glucose can be demonstrated, perhaps due to a second pathway for intestinal glucose absorption not apparently shared by galactose. Hydrolysis of disaccharides occurred in the small intestine but the released glucose was absorbed no better than when administered as a monosaccharide. This implies that the site of disaccharidase activity is located more superficially at the luminal side of the epithelial cell membrane than the disturbed step of glucose and galactose transport.

### 8410 ACQUIRED LACTOSE MALABSORPTION IN THAI CHILDREN. *(E.)*

Keusch, G. T. (SEATO Med. Res. Lab., Bangkok, Thailand), F. J. Troncale, L. H. Miller, V. Promadhat and P. R. Anderson. *Pediatrics* 43(4, pt 1):540-545, 1969.

One hundred seventy-two normal Thai infants and children were studied to determine the prevalence of lactose malabsorption and lactase deficiency. Eighty-five were normal children 1-24 months of age institutionalized at birth because their parents had tuberculosis or leprosy, 30 were 3-6 yr old at another orphanage, 41 were unweaned infants 1-24 months of age, and 16 non-milk drinking post-weaning children 2-8 yr of age from a lower economic class section. The 85 institutionalized children received commercially prepared milk-type formulas with daily supplements of vitamins and iron. The abnormalities became manifest after infancy, and by age 2 yr virtually all children studied were abnormal. Sucrase and maltase activities and sucrose and glucose absorption were normal in most. Calculation of ratios of median maltase/lactase, sucrase/lactase, and maltase/sucrase activities also indicated the major abnormality to be isolated lactase deficiency. Lactose malabsorption appeared earlier in life in a group of Thai children in a normal institution compared to a group of village children. This suggests that environmental factors may be important in the pathogenesis of lactase deficiency in Thai children, although genetic influences cannot be excluded.

### 8411 RADIOLOGICAL FINDINGS IN PROTEIN-LOSING GASTRO-ENTEROPATHY. *(E.)*

Werbeloff, L. (Groote Schuur Hosp., Cape Town, S. Africa), S. Bank and I. N. Marks. *Brit J Radiol* 42(500):605-612, 1969.

Protein-losing enteropathy may be due to a variety, and often a combination, of causes. Radiological examination may show: localized intestinal lesion; evidence of a malabsorption pattern only; or evidence of rugae and villous enlargement. The X-ray changes of malabsorption are generally accepted as dilatation of the small intestine so that the caliber of the lumen is at least 3 cm in diameter. Hypoproteinemia due to protein-loss from the kidneys did not show any of the radiological findings associated with protein-loss from the gastrointestinal tract. Although it was impossible to demonstrate abnormal small bowel patterns in 8 patients, it is possible that hypoalbuminemia associated with electrolyte disturbances and tense ascites may produce radiological abnormalities on small bowel follow-through barium studies. Post-mortem material from cases of end-stage renal disease does not usually show evidence of small bowel mucosal edema. Although the diagnosis of protein leakage from the gut is dependent on radioisotope studies, gastrointestinal radiology was found to be very helpful in determining both the nature of the lesion and in suggesting that protein-loss is occurring from the gastrointestinal tract and not from another source.

### 8412 SMALL INTESTINAL STRUCTURE AND ABSORPTION IN EGYPT. INFLUENCE OF PARASITISM AND PELLAGRA. *(E.)*

Halsted, C. H. (Dept. Med., Ain Shams U., Cairo, Egypt), S. Sheir, N. Sourial and V. N. Patwardhan. *Amer J Clin Nutr* 22(6):744-754, 1969.

Small intestinal structure and function were assessed in 14 subjects with no intestinal disease and in 33 patients with hookworm disease or pellagra. The intestinal biopsies in the control group were characterized by mild inflammation, whereas more severe mucosal injury was observed in 43.5% of the patient groups. The degree of mucosal injury was not affected by the severity of parasitic infection. Intestinal lactase levels were decreased in 22 of 23 biopsy specimens. Subnormal absorption of *d*-xylose was observed with equal frequency in healthy subjects and in patients with parasitism or pellagra. Steatorrhea occurred in 4 patients with low serum albumin levels and in each instance was corrected by a hospital diet without definitive treatment of parasitism. In Egyptian farmers, endemic intestinal parasitism and pellagra is associated with a high incidence of jejunal mucosal injury, which bears no obvious relationship to intestinal absorption . The specific cause of the steatorrhea in protein-deficiency diseases is unclear.

### 8413 TROPICAL SPRUE IN CHILDREN. A SYNDROME OF IDIOPATHIC MALABSORPTION. *(E.)*

Mathan, V. I. (Christian Med. Coll. Hosp., Vellore, India), S. Joseph and S. J. Baker. *Gastroenterology* 56(3):556-570, 1969.

Detailed studies were made of 20 children, 9 of whom presented diarrhea and 11 of whom were detected by field surveys. There were no detectable differences between the 2 groups. During hospitalization they were fed either a standard hospital diet or a diet low in vitamin $B_{12}$ and folate. The daily fat intake was 50 g in either case except in a few patients who were very ill at admission and had to be fed parenterally. The age at onset ranged from 4-12 yr. There were 17 boys and 3 girls. Diarrhea was the first symptom in most and 4 had also a fever. The stools were usually watery and semiformed and initially contained blood and mucus in about half the cases. Abdominal distention, loud borborygmi, anorexia, and vomiting were associated symptoms. Most had lost weight and 6 had become emaciated. Ten had dyspigmentation of the hair. Stool examination showed that 13 had fat globules and half had parasitic infestations (*Ancylostoma duodenale* in 7, *Ascaris lumbricoides* in 4, *Giardia lamblia* in 2, and *Entamoeba histolytica* in 1). Intestinal absorption was not improved by eradication of the parasites. All the patients had steatorrhea; 16 of 18 had defective xylose absorption and 13 of 18 had defective glucose absorption. Vitamin $B_{12}$ absorption was abnormal in 14 of 18; when intrinsic factor was added, absorption was unchanged in 10, and improved in 2. Barium meal examination in 19 showed 1 or more of the following: dilation, coarse mucosal pattern, and disordered peristalsis. The dilation was usually confined to the duodenum and jejunum but occasionally involved the ileum. In 1 it was confined to the ileum. Treatment was simple and symptomatic. Diagnosis should be by elimination of all other known causes of malabsorption.

8414 TREATMENT OF PROTEIN LOSING ENTEROPATHY DUE TO IDIOPATHIC INTESTINAL LYMPHANGIECTASIS BY PARENTERAL NUTRITION. [CASE REPORT] *(E.)* Wagner, A. (Med. U. Polyclinic, Heidelberg, Germany). *Digestion* 2(3):167-171, 1969.

8415 DIAGNOSIS OF MALABSORPTION SYNDROME. *(Ser.)* Brkić, D. (Sch. Med., Belgrade, Yugoslavia), L. Glišić, S. Rodić, R. Novaković, V. Bošnjaković and Z. Perišić. *Srpski Arh Celok Lek* 96(1):31-38, 1968.

8416 THE EFFECT OF GUANINE AND GUANOSINE ON EXPERIMENTAL STEATOSIS IN THE RAT. *(Fr.)* Roux, G. (Fac. Med. Pharm., Toulouse, France). *C R Soc Biol* 161(8/9):1825-1827, 1968.

8417 LACTOSE INTOLERANCE IN INFANCY AS A CAUSE FOR FAILURE TO THRIVE. [CASE REPORT] *(E.)* Seriki, O. (U. Coll. Hosp., Ibadan, Nigeria) and K. J. Adcock. *W Afr Med J* 17(1):14-16, 1968.

8418 WHIPPLE'S DISEASE. [CASE REPORT] *(Pol.)* Wacker, B. (Dept. Anat. Pathol., Acad. Med., Warsaw, Poland), A. Baczko and J. Szczerbań. *Pol Tyg Lek* 23(46):1781-1782, 1968.

8419 MALABSORPTION SYNDROME IN CHILDREN INFESTED WITH *GIARDIA INTESTINALIS.* *(Ser.)* Petrovic, L. (Med. Fac., U. Belgrade, Yugoslavia), V. Milosević and J. Žujović. *Srpcki Arh Celok Lek* 96(3):297-300, 1968.

8420 FRUCTOSE INTOLERANCE: A CASE. *(Fr.)* Fournier, A. (Med. Soc. Anat. Clin., Lille, France), A. Pauli, M. Leuridan, J. Cousin and M. Barry. *J Sci Med Lille* 86(3):177-186, 1968.

8421 RADIOLOGICAL FACETS OF MALABSORPTION. *(E.)* Tod, P. A. (Royal Brisbane Hosp., Brisbane, Australia). *Aust Radiol* 12(2):121-128, 1968.

8422 WHIPPLE'S DISEASE. A CASE REPORT. *(Fr.)* Giard, P. (Med. Soc. Anat. Clin., Lille, France), G. Vincent, Jr., J. Saout, P. Choteau, J. P. Leroy and A. Castiaux. *J Sci Med Lille* 86(8/9):495-499, 1968.

8423 WHEAT STARCH IN DIET IN GLUTEN-DEPENDENT CELIAC DISEASE. *(Pol.)* Zareba, J. (Clin. Child. Dis., Silesian Acad. Med., Zabrze, Poland). *Pol Tyg Lek* 23(28):1065-1066, 1968.

8424 MALABSORPTION DISEASES. *(E.)* Danhof, I. E. (U. Texas Southwestern Med. Sch., Dallas). *Dallas Med J* 54(11):538-539, 1968.

8425 CLINICAL AND BIOLOGICAL STUDIES OF DIFFUSE VILLOUS ATROPHY. [CASE REPORT] *(Fr.)* Dhumeaux, D. (Saint-Lazare Hosp., Paris, France), S. Erlinger, J. C. Rambaud and J. J. Bernier. *Sem Hop (Paris)* 43(51):3225-3233, 1967.

8426 POST-RESECTIONAL MALABSORPTION IN CROHN'S DISEASE. [CASE REPORT] *(Nor.)* Dedichen, H. (Munic. Hosp., Oslo, Norway), E. Gjone and N. Helsingen Jr. *Nord Med* 78(38):1226-1228, 1967.

8427 WHIPPLE'S DISEASE. INTESTINAL LIPODYSTROPHY. *(It.)* Marsella, A. (Inst. Radiol., U. Rome, Italy). *Nunt Radiol* 23(12):1511-1517, 1967.

8428 PROTEIN LOSING ENTEROPATHIA AS THE CLINICAL PICTURE OF CELIAC DISEASE. *(Ger.)* Meister, R. (Mautner-Markhof'schen Child. Hosp., Vienna, Austria), N. Stefenelli and H. Zimprich. *Paediat Paedol* 5(1):1-6, 1969.

8429 GLUTEN-INDUCED CELIAC DISEASE WITH AN ATYPICAL COURSE IN A 10-MONTH OLD INFANT. *(Pol.)* Zaręba, J. (Clin. Child. Dis., Silesian Acad. Med., Zabrze, Poland) and E. Zieleźnik. *Pol Tyg Lek* 23(42):1602-1603, 1968.

8430 **AN ANTISERUM TO OVARIAN MUCINOUS CYST FLUID WITH COLON CANCER SPECIFICITY.** *(E.)* McNeil, C. (Coll. Med. U. Utah, Salt Lake City), J. N. Ladle, W. M. Helmick, E. Trentelman and M. W. Wentz. *Cancer Res* 29(8):1535-1540, 1969.

Antisera to mucin of benign mucinous cystadenomas of human ovary were produced in rabbits. These antisera were reacted with cancerous and normal tissue extracts by the Ouchterlony double diffusion test. The cancerous tissues were from colon, stomach, lung, breast, ovary and kidney. Distinctive precipitin reactions occurred with colon cancer mucosal extracts. These bands were distinctive for colon cancer and could not be removed by absorption with normal colon mucosa from the same patient. Other mucin-producing tumors failed to show any definitive cancer precipitin with this antibody. The ovarian mucins appear to contain antigenic material common to altered mucin in colon cancer.

8431 **PSYCHOLOGIC RESPONSE TO COLECTOMY. II. ADJUSTMENT TO A PERMANENT COLOSTOMY.** *(E.)* Druss, R. G. (Columbia U., Coll. Physicians Surgeons, New York, N. Y.), J. F. O'Connor and L. O. Stern. *Arch Gen Psychiat (Chicago)* 20(4):419-427, 1969.

The emotional adjustment of 36 patients (22 men, 14 women; average age at follow-up was 61 yr) with a permanent colostomy (average age at surgery was 56.5 yr) is reported. The initial reaction of virtually all patients following surgery was one of depression. There were various components to this state including reaction to loss of the colon, shame at being unable to avoid soiling, fear of being repugnant to others, and anger at the surgeon for being mutilated but too helpless to express it. The first year following surgery was for many patients a time of relearning bowel control. The trainability of a colostomy allowed for this. The more successful patients made use of obsessional defenses as a way of establishing lost anal control. In answers to a question as to current state of health, 5% said excellent, 31% very good, 53% good, and 11% poor. Less successful patients became phobic, restricting activities, avoiding others and remaining at home. The world was seen as threatening and they saw themselves as mutilated and less able to cope with it. The role of the surgeon, the spouse and colostomy clubs in supporting the self-mastery of the colostomy patient is discussed.

8432 **INFARCTION OF THE LEFT HEMICOLON DUE TO PRIMARY VASCULAR OCCLUSION.** *(E.)* Gibson, W. E. III (Tulane U. Sch. Med., New Orleans, La.), C. W. Pearce and O. Creech Jr. *Dis Colon Rectum* 12(5): 323-326, 1969.

Infarction of the left hemicolon due to primary vascular occlusion was observed in 78 patients during the period, 1951-1966. Isolated infarction of the left hemicolon due to occlusion of the inferior mesenteric artery was seen in 4 male patients. Diagnosis was made clinically in 3 of 4 cases; 1 of 2 patients operated on survived. Occlusion of the superior mesenteric artery or terminal mesenteric arteries occurred in 74 patients. Infarction of the entire colon as well as the small intestine was seen in 14; 9 of them had terminal mesenteric artery thrombosis with hemorrhagic infarction, and 5 had thrombosis of the superior mesenteric artery. None of these survived. Infarction of the left hemicolon should be considered in patients with arteriosclerosis who have pain and tenderness in the lower left abdominal quadrant, bloody rectal content, and leukocytosis. These manifestations may appear after operation on the abdominal aorta. The diagnosis may be confirmed by sigmoidoscopic examination. Early recognition and resection of the infarcted area are essential for survival.

8433 **NEONATAL NECROTIZING ENTEROCOLITIS. A REPORT OF TWENTY-ONE CASES WITH FOURTEEN SURVIVORS.** *(E.)* Stevenson, J. K. (U. Washington Sch. Med., Seattle), C. B. Graham, T. K. Oliver Jr and V. E. Goldenberg. *Amer J Surg* 118(2):260-272, 1969.

Between Feb. 1962 and Jan. 1969, 21 infants (15 weighing less than 1,650 g, 6 weighing 1,900 g or more) had necrotizing enterocolitis, and 67% survived. The most common radiographic abnormality was pneumatosis intestinalis, usually an ominous sign in infants. Necrotizing enterocolitis most commonly occurs in the premature infant within the first few days of life, typically in an infant weighing less than 1,600 g who often has earlier experienced minor apneic spells but otherwise has done well and taken feedings. Between the 3rd and 4th day of life the baby may begin to vomit and evidence delayed gastric emptying. Early diagnosis and treatment, particularly surgical therapy, are critically important for a favorable outcome. In most instances the disease is rapidly progressive, leading to free perforation, sepsis, shock, and death unless the patient is operated upon. Free i.p. air is an absolute indication for operation. Primary segmental resection with end to end anastomosis is desirable and can be accomplished in most cases. Thirteen of the 14 surviving patients are still living. The lesions are predominantly located in the lower ileum, cecum and ascending colon. The progression of tissue changes and the clear demarcation of the necrotic areas at the histologic level seem to suggest a vascular phenomenon as the most likely pathogenic pathway.

8434 **TUBE CECOSTOMY - AN APPRAISAL.** *(E.)* Hopkins, J. E. (Philadelphia, Penna.). *Dis Colon Rectum* 12(5):379-385, 1969.

Twelve elective tube cecostomies were performed in conjunction with resections for carcinoma of the left colon, resections for diverticulitis, and (in 1 patient) at the time of an umbilical hernia repair with the finding of a walled-off portion of the cecum. The average age was 67 yr (range: 49-84 yr). In 11 of the 12 tube cecostomy was performed because of the technical difficulty of low anterior resection, poor bowel preparation, or the possible inflammatory obstruction at the anastomosis. In these the tube was removed an average of 10 days after operation (range: 7-13 days). Uneventful healing occurred in 9 of 10 patients who survived. Emergency cecostomy was performed in 37 patients because of advanced abdominal distention, abdominal tenderness and pain, lack of bowel passage, radiologic evidence of a closed loop or markedly distended cecum, and fear of a possible colonic perforation. The average age of these patients was 70 yr (range: 44-90 yr). Neoplastic obstructions were the indication in 30 (81%). All the primary malignancies were located from the splenic flexure distally to the rectum except 1 in the proximal transverse colon. Morbidity was low and no deaths in the emergency group were directly related to the cecostomy. In the cases reviewed the 5 yr survival rate after emergency cecostomy for obstructing primary cancer of the colon followed by resection and recovery was 50%.

8435 **SURGICAL MANAGEMENT OF COMPLICATIONS OF DIVERTICULITIS IN PATIENTS OVER SEVENTY YEARS OF AGE.** *(E.)* Mitty, W. F. (New York U. Med. Ctr., N. Y.), D. Befeler, C. Grossi and L. M. Rousselot. *Amer J Surg* 117(2):270-276, 1969.

From January 1958, through December 1967, 2807 patients were seen with diverticular disease of the colon: 51% (1432) with diverticulosis and 49% (1373) with diverticulitis. Of these 13.5% (377) required surgery for complication. This represents 27.5% of those with diverticulitis. Of the 377, 72 were in the fifth decade, 118 in the sixth, and 102 in the seventh; 33 were over 80. Abdominal pain was the presenting symptom in 71% of the patients under 70 and in 55% of those over 70. Bleeding was a symptom in 14% of those under 70 and in 15% of those over 70. The duration of symptoms in those over 70 was 1.8 yr while in those under 70 it was 3 yr. Recurrent attacks were the indication for surgery in 49% of those over 70 and in 48% of those under 70. Morbidity rates after emergency operations in patients under 70 yr of age was 37.6% compared to 64.5% in those over 70. The overall mortality rate was 2.4% for those under 70 and 4.4% for those over 70. The mortality after emergency surgery was 4.1 for those under 70 and 11.1% for those over 70. The mortality for the 38 patients over 70 having elective three-stage operative procedures was zero. All patients over 70 who died had an operation for the complications of divericulitis. Staged operative procedures may extend life for patients over 70 with this benign disease.

8436 **DISTINGUISHING FEATURES OF WELL DIFFERENTIATED MUCINOUS ADENOCARCINOMA OF THE RECTUM AND COLITIS CYSTICA PROFUNDA.** *(E.)* Silver, H. (Washington U. Sch. Med., St. Louis, Mo.) and J. Stolar. *Amer J Clin Path* 51(4):493-500, 1969.

Clinical features to distinguish colitis cystica profunda from well differentiated mucinous carcinoma are: X-ray findings resembling those of 1 or more irregular polypoids filling defects while in mucinous carcinoma there is narrowing of the lumen resembling nonmalignant stricture or inflammation. A mass, polyp, or plaque-like thickening (maximal size: 3 cm) 5-12 cm from anal canal usually suggest a benign lesion but in mucinous carcinoma mucosa ulceration occurs when the tumor is 6 cm or larger. In colitis cystica profunda there is occasional ulceration or umbilication of the overlying cysts but in mucinous carcinoma the lesion resembles an abscess. Local resection is followed by cure or at least extended symptom free periods in colitis cystica profunda but mucinous carcinoma resections heal poorly with chronic fistula formation. Cysts in colitis cystica profunda discharge mucus while in well differentiated mucinous carcinoma discharges are purulent, colloid, or gelatinous material. The distinguishing histological features of mucinous carcinoma are: pools of mucin containing clusters of malignant cells; glandular budding; and irregular multilayering of epithelium. These changes may be subtle but they become apparent on careful examination and with adequate material.

8437 **ULCERS OF ESOPHAGEAL LARGE INTESTINE.** *(Rus.)* Zhupan, V. F. (S. M. Kirov Acad. Milit. Med., Leningrad, USSR). *Khirurgiia (Moskva)* 45(2): 27-29, 1969.

The author records 2 cases of ulcers of the esophageal large intestine and describes symptoms, including those mentioned in pertinent literature. Both patients developed ulcers of the presternal esophagus formed from the left half of the large intestine and placed in an antiperistaltic position. In 1 case 2 facts are notable: lowered acidity of gastric juice and the absence of radiological indication of esophageal ulcer. Symptoms leading to correct diagnosis were local pain at the lower end of the artificial esophagus and seepage and change of skin color in the area. The dominant symptom in the second case was secondary hypochromic anemia due to chronic loss. Thus, it is possible to postulate that the ulcers developed because of the lack of a cardiac sphincter and the reflux of gastric contents into the intestinal transplant.

8438 **DEFINITION OF MEGACOLON IN COLITIS.** *(E.)* Jones, J. H. (St. Mark's Hosp., London, England) and M. Chapman. *Gut* 10(7):562-564, 1969.

Radiographs of 3 groups of patients were studied: 1) 100 controls, 2) 31 patients with total proctocolitis without megacolon, and 3) 15 patients with severe idiopathic proctocolitis complicated by megacolon. Measurements of the diameter of the colon were made on plain abdominal films provided these had been taken before any bowel preparation, and on films of patients who had undergone barium enema examination by the air-contrast technique. In the normal group and in the patients with total colitis the width of the colon decreased progressively from the ascending through the transverse to the descending colon. The mean diameter of each segment of the colon in the patients with total colitis was less than in the normal group. Severe dilatation of the colon in colitis mostly affects the transverse segment. Distension by air insufflation is doubtless the reason for the greater calibre of the colon on enema films (upper normal transverse limit-6.5 cm) compared with that on plain films (upper normal transverse limit–5.5 cm). The diameters of the transverse colon on plain films in patients with severe colitis complicated by megacolon were all above the upper normal limit of 5.5 cm The mean diameter of the transverse colon in the midline on plain radiographs in patients with severe colitis and megacolon was 8.2 cm.

8439 **MORTALITY STUDIES IN DIVERTICULAR DISEASE OF THE COLON. PART I. BASAL ACTIVITY AND RESPONSE TO FOOD ASSESSED BY OPEN-ENDED TUBE AND MINIATURE BALLOON TECHNIQUES. PART II. EFFECT OF COLONIC AND RECTAL DISTENSION.** *(E.)* Parks, T. G. (Dept. Surg., Queen's U., Belfast, Ireland) and A. M. Connell. *Gut* 10(7):534-542, 1969

Intraluminal pressures in the sigmoid colon and rectum in 36 patients with diverticular disease of the colon were studied (18 controls) using the open-tube technique. Motility was also assessed in 25 patients with diverticular disease of the colon (15 controls) using a miniature balloon technique. Using open tubes, only slightly more colonic activity than normal was detected in patients with diverticular disease under resting conditions, but using miniature balloons patients with the disease appeared to have less activity than controls. Using open tubes, the relative increase in motility after eating in patients with diverticular disease appeared to be much greater than normal; while using miniature balloons the increase was normal. The duration of activity was less but the amplitude of the waves was greater in diseased subjects. The greater activity indicated in diverticular disease when using the open-tube technique does not necessarily indicate true muscular hyperactivity. Intraluminal pressures are determined not only by wall movements, but also by the ease with which pressure segments are formed, implicating such factors as the diameter of the lumen, mucosal exuberance, and the nature of the bowel content. Twenty-eight patients with diverticular disease and 15 control subjects were used in a further study to determine the response of colonic muscle to a stretching force, using a combined open-tube and balloon technique. The tension developed in the bowel wall in response to distension was less in the diverticular segment of those with diverticular disease than in the normal subject. The resistance of the diverticular muscle against a stretching force appears to decompensate at an early stage, surprising in view of its structure. The desire to defecate was stimulated more readily by distension of the colon than the rectum and patients with diverticular disease developed a desire to defecate more readily than normal subjects, possibly because of the narrower diameter of the colon of the diverticular patients and increased sensitivity due to inflammation.

8440 **THE RADIOGRAPHIC ANATOMY OF THE NORMAL AND ABNORMAL NEONATAL PELVIS.** *(E.)* Kelly, J. H. (Royal Child. Hosp. Res. Found., Melbourne, Australia). *J Pediat Surg* 4(4):432-444, 1969.

Specimens of the pelvis of 6 normal neonates and of 3 males with anorectal malformations (2 with imperforate levator ani) were dissected and X-rayed, contrast media outlining the viscera and levator ani within the bony and cartilaginous pelvis. On lateral radiography, the pubococcygeal (P/C) line was indicated, and the point of the comma-shaped ischial ossific center was defined as the "I" point. The "I" point is the antero-inferior limit of the levator ani in the midline when the latter was imperforate, whereas the levator ani extended more inferiorly in the other specimens. The anatomic basis for this finding is discussed. That the bowel ended proximal to the "I" point in supralevator abnormalities and distal to it in translevator abnormalities is suggested. In most instances this hypothesis proved valid, but on occasion, movement of the levator ani gave misleading appearances. The presence of a fistula between the bowel and the urinary tract indicated a supralevator type of lesion.

8441 **RELATIONSHIP OF EXPERIMENTALLY INDUCED INTESTINAL TUMORS TO LAXATIVE INGESTION.** *(E.)* Cleveland, J. S. (Yale U. Sch. Med., New Haven, Conn.) and J. W. Cole. *Cancer* 23(5):1200-1203, 1969.

Wistar rats were divided randomly into 2 groups: one group (controls) received tap water for drinking, the other received 5% magnesium sulfate (5 mg $MgSO_4$ made up to 100 ml in tap water) for drinking from 9 am Monday until 5 pm Friday. Tap water was given both groups over the weekend. Both groups received 3:2'-dimethyl-4-aminodiphenyl dissolved in peanut oil (4 ml agent diluted to 100 ml with peanut oil) s.c. weekly. Usual amount injected was ½ ml. (Agent is a known producer of intestinal neoplasms.) The study was designed to determine if reduced fecal contact time with the intestinal mucosa and decreased concentration of the carcinogen in the stool would modify the incidence of intestinal neoplasia. A laxative was used to study this question. Control rats passed firm, dessicated, pellet-like stools. The experimental group, after 12-24 hr ingestion of the magnesium sulfate solution, passed watery, formless stools and continued to do so until tap water was substituted. The water concentration (% of wet weight) of normal rat pellets was 50-58%, average 54%. The water concentration of the experimental group ranged from 63-86%, average 76%. The experimental group had 5 of 13 with intestinal neoplasms. The control group had 5 of 11 with intestinal neoplasms. No significant difference was noted therefore in the incidence of neoplasia. In the animal model used any variation in the length of contact time and any alteration in concentration of the carcinogen induced by the laxative ingested did not seem to be a limiting factor in the induction of colonic tumors.

8442 **ACUTE APPENDICITIS IN CHILDREN UNDER SIX YEARS.** *(E.)* Blair, G. L. (Stanford U. Sch. Med., Palo Alto, Calif.) and W. D. Gaisford. *J Pediat Surg* 4(4):445-451, 1969.

The hospital records of 51 children (approximately ½ were male and ½ female) under the age of 6 yr (median 3½) admitted during a 10 yr period with a diagnosis of acute appendicitis and/or had an appendectomy performed have been reviewed. Of these 44 had acute appendicitis (including 2 of 9 patients found to have acute appendicitis after accidental appendectomies). Perforation of the appendix was found in 22 of 44 patients with acute appendicitis. Twenty-one had gross perforation, 9 had both gross and microscopic perforation, and 1 had only microscopic evidence of perforation. Abdominal pain, vomiting and anorexia were present in three quarters of the children. Symptoms were not different in those with perforated appendices. Abdominal tenderness was present in 96%, guarding in 73%. The average white count was 17,000. All but 2 of 30 flat films were abnormal. *E. coli* was cultured by itself in 12 patients, a mixed flora in 13 patients and pinworms in 1. There were no deaths. Complications included wound infection (5 of 22 perforations, 2 of 22 without perforation and ileus (4 of 22 patients with perforations).

8443 **ENVIRONMENTAL FACTORS OF CANCER OF THE COLON AND RECTUM. II. JAPANESE EPIDEMIOLOGICAL DATA.** *(E.)* Wynder, E. L. (Sloan-

Kettering Inst. Cancer Res., New York), T. Kajitani, S. Ishikawa, H. Dodo and A. Takano. *Cancer* 23(5):1210-1220, 1969.

The epidemiology of colon and rectum cancer in Japan was studied by means of a questionnaire, adapted to Japanese conditions, and interviews with 157 patients and 2 sets of control patients: 1 group with cancer at a site other than the gastrointestinal tract and the other with nonmalignant diseases such as hypertension, stomach ulcer, mastopathy, or tuberculosis. The 307 control patients were age-matched and were drawn from the same hospitals as the study group. The colon and the rectum patients were separated during analysis of the data. Rectosigmoid lesions were included in the colon group. The male colon cancer group had a higher proportion of professional and technical workers than the rectal cancer and control groups. The rectal cancer group contained more sales and service workers than the other 2 groups. The colon cancer group tended to have a diet lower in rice and higher in fruit and milk indicating a higher socioeconomic status. The diets of the rectal cancer and of the control patients were similar. There were no meaningful differences in the tobacco and alcohol consumption of the 3 groups. There was a slightly higher rate of 2-or-more bowel movements/day among the male study patients and more irregularity of bowel movement in the female study group than in the controls. None of the males used laxatives and only 2 subjects in the whole study used suppositories. One female colon cancer patient reported a history of ulcerative colitis and 3 male and 2 female patients with rectal cancer reported severe colitis. There was no relationship to schistosomiasis or to any other diseases of the large bowel. There was no difference in weight distribution among the rectal, colon, and control groups. In summary, patients in Japan with cancer of the colon seem to have a higher socioeconomic status than patients with rectal cancer and have a more "westernized" diet with more fat and fresh fruit. The etiology of cancer of the colon may have some relation to its dietary fat and fecal content. By influencing the make-up of the bacterial flora, may affect cancer of the colon but not cancer of the rectum.

8444 **PRIMARY RESECTION AND ANASTOMOSIS IN THE MANAGEMENT OF PERFORATION OF DIVERTICULITIS OF THE SIGMOID FLEXURE AND DIFFUSE PERITONITIS.** *(E.)* Dandekar, N. V. (New Rochelle Hosp., N. Y.) and W. J. McCann. *Dis Colon Rectum* 12(3):172-175, 1969.

During a 7 yr period 26 patients with acute sigmoidal diverticulitis, perforation, and diffuse peritonitis underwent operations. Nineteen (Group I) were treated by staged procedures: 16 transverse colostomy and drainage, resection of the sigmoid, and closure of the colostomy; 2 Hartmann's procedure, colorectal anastomosis; and 1 exteriorization of the involved loop. Seven patients (Group II) underwent primary resection and anastomosis as an emergency procedure, 6 without and 1 with a proximal colostomy. Eight of 19 in Group I had complications (53%): 2 fecal fistula, 3 pelvic abscess, 1 abdominal wall abscess; evisceration, and 1 ischemic necrosis of the colon. In this group 4 died (21%). In Group II there were 2 complications: 1 fecal fistula and 1 pelvic abscess; 1 patient died (14%). Primary resection and anastomosis seems, in view of these results to be the procedure of choice in the management of this condition.

8445 **TOXIC DILATATION OF COLON (TOXIC MEGACOLON): ETIOLOGY, TREATMENT AND PROGNOSIS IN 42 PATIENTS.** *(E.)* Norland, C. C. (Billings Hosp., U. Chicago, Ill.) and J. B. Kirsner. *Medicine* 48(3):229-250, 1969.

The etiology, treatment and prognosis in 42 patients with toxic megacolon, including 32 without colonic perforation (15 men and 17 women) and 10 with bowel perforation were studied. The most important etiological factor in the development of toxic megacolon was severe inflammation of the muscularis propria of the colon. The inflammatory process involved Auerbach's myenteric plexus at the base of deep ulcers. The most common precipitating factors of toxic dilatation of the colon were narcotics, anticholinergics and barium enema examinations. The toxic factors involved in dilatation of the colon complicating ulcerative colitis were usually reversible which was determined by the intensity of the inflammation reaction in the colon. There were 6 deaths among the perforation cases and 2 deaths in the 32 nonperforation cases. The toxic megacolon subsided with medical management in 25 of the 32 nonperforation cases. Surgery was not necessary in 8 patients, of whom 6 were given steroids for the first time during hospitalization. Surgery was required in 23 of the 32 nonperforation cases (11 for toxic megacolon, 12 for other later complications). All patients with colonic dilatation longer than 12 days required surgery.

8446 **THE "RED HERRING" BARIUM-MEAL X-RAY EXAMINATION IN CARCINOMA OF THE RIGHT SIDE OF THE COLON.** *(E.)* Fagan, P. A. (St. Vincent's Hosp., Sydney, Australia). *Med J Aust* 1(6):276-278, 1969.

The histories of 96 cases of carcinoma of the right side of the colon observed during a 9 yr period were examined. In 10 of these cases (7 female, 3 male, average age 68) an initial diagnosis of an upper gastrointestinal lesion was made after a barium meal. Included as diagnoses were hiatus hernia (5), gastric ulcer (2), duodenal ulcer (2), and atrophic gastritis (1). Five had symptoms of colonic carcinoma, 2 of whom had negative barium enemas. An average delay of 9 months then occurred before the colonic carcinoma was diagnosed. The indications for barium enema X-ray examination in cases of this type are discussed.

8447 **494 CASES OF ACUTE COLON VOLVULUS.** *(Fr.)* Boulvin, R. (Surg. Clin., Meched U., Iran), A. Esphahani, Zadeh and A. Tavakoli. *Mem Acad Chir* 95(16/17):467-471, 1969.

Reports of 459 cases (415 males, 43 females; 13-91 yr old) of acute volvulus of the sigmoid intestine, and 35 cases of acute volvulus of the cecum (26 males, 9 females; 8 months-60 yr old) are presented. The operations performed in 374 cases of isolated volvulus of the sigmoid, without irreversible lesions, were: rectosigmoidal intubation with rectoscopic control in 279 cases, with 10 deaths; laparotomy associated with detorsion in 95 cases (14 times associated with colonfixation; once with multiple suture of small intestine, cecum, and transverse colon), with 23 deaths. Among 65 cases with acute volvulus of the sigmoid intestine, with irreversible lesions, 12 were inoperable and died. The operations performed were:

6 resections (5 deaths); 11 exteriorization-resections by Bloch Michulicz's technique (10 deaths); 36 intraperitoneal resections, followed by a left iliac anus (15 deaths). In 20 cases of volvulus associated with the sigmoid intestine and with the small intestine, the deaths were 13 (65% of the operated cases). Among 35 cases of volvulus of the cecum, 8 of them associated with volvulus of the small intestine, there were 7 deaths: 6 in cases of irreversible lesions, 1 after a reoperation for cecal fistula persisting after cecostomy.

8448 SOME ERRORS AND DANGERS IN SURGERY OF PROLAPSE OF THE CECUM. *(Rus.)* Mazchenko, N. S. (Vladivostok Med. Inst., USSR) and L. P. Ronzhina. *Klin Khir (Kiev)* (8):39-40, 1968.

8449 APPENDICECTOMY IN WOMEN. *(E.)* Barraclough, B. M. (Graylingwell Hosp., Chichester, England). *J Psychosom Res* 12(3):231-234, 1968.

8450 CONCENTRATED PREOPERATIVE RADIOTHERAPY. *(E.)* McCredie, J. A. (U. Western Ontario, London, Canada), W. R. Inch and T. A. Watson. *Rev Surg* 25(2):80-86, 1968.

8451 A METHOD OF PLASTIC SURGERY FOR ANAL STRICTURES. *(Rus.)* Berdnikov, M. P. (Kuibyshev Med. Inst., USSR). *Klin Khir (Kiev)* (6):73-75, 1968.

8452 MESENTERIC VASCULAR OCCLUSION. RECOVERY FOLLOWING EXTENSIVE RESECTION OF SMALL AND LARGE INTESTINES. *(E.)* Cucolo, G. F. (Lutheran Med. Ctr., Brooklyn, N. Y.) and H. N. Patel. *Int Surg* 49(2):117-122, 1968.

8453 A CASE OF CARCINOID OF THE APPENDIX. *(Pol.)* Dudziak, A. (Marie Curie-Sklodowskii Munic. Hosp., Skarżysko-Kamienna, Poland). *Wiad Lek* 21(5):413-414, 1968.

8454 AMINOSIDINE SULPHATE TREATMENT PRIOR TO LARGE INTESTINE SURGERY. *(It.)* Paladino, L. (Inst. Gen. Clin. Surg., U. Naples, Italy), O. Janelli and M. G. Iovino. *Riforma Med* 82(35):966-968, 1968.

8455 ANAL FISTULA IN SURGICAL PRACTICE. *(Pol.)* Mieszczański, A. (Munic. Hosp. N. 2, Wałbrzych, Poland). *Wiad Lek* 21(5):355-359, 1968.

8456 ABDOMINAL ACTINOMYCOSIS ORIGINATING FROM A DIVERTICULUM OF THE LEFT PART OF THE COLON. *(Pol.)* Mazurek, R. (Munic. Hosp., Wałbrzych, Poland) and A. Mieszczański. *Wiad Lek* 21(3):185-188, 1968.

8457 TREATMENT OF THE COLON VOLVULUS. *(Sp.)* Gutierrez Samperio, C. (Red Cross Cent. Hosp., Mexico) and J. Malouly. *Prensa Med Mex* 32(11/12):354-361, 1967.

8458 POLYPOID MUCUS-SECRETING ADENOCARCINOMA OF THE CECUM IN THE FORM OF A PSEUDO-APPENDICULAR TUMOR IN A FOURTEEN YEAR OLD BOY. *(Fr.)* Boulvin, R. (Chah Reza Hosp., Meched, Iran) and A. Alavi. *Sem Hop (Paris)* 43(52):3337-3342, 1967.

8459 SEGMENTARY HYPERPLASTIC COLITIS OF THE CROHN TYPE. *(It.)* Merli, E. (Inst. Radiol., U. Genoa, Italy) and S. Bottino. *Radiol Med (Tornio)* 53(11):1115-1126, 1967.

8460 PROLAPSE OF THE RECTUM. TECHNIQUE FOR SURGICAL TREATMENT. *(Sp.)* Peña y de La Peña, E. (Cent. Milit. Hosp., Mexico). *Prensa Med Mex* 32(5/6):163-167, 1967.

8461 BIRTH EVENTS, APPENDICITIS, AND APPENDECTOMY. *(E.)* Eylon, Y. (U. Alberta, Edmonton, Canada). *Brit J Med Psychol* 40(4):317-332, 1967.

8462 ASEPSIS IN LARGE BOWEL SURGERY. *(E.)* Hughes, E. S. R. (Melbourne, Australia). *Med J Aust* 2(13):663-666, 1967.

8463 PHYSIOPATHOLOGY OF THE COLON IN CHAGAS' DISEASE. RADIOLOGICAL STUDIES. *(Por.)* Fonseca, L. C. (Fac. Med., U. São Paulo, Brazil). *Rev Goiana Med* 14(1/2):27-59, 1968.

8464 EXFOLIATIVE CYTODIAGNOSIS OF CANCER OF THE COLON. *(Rus.)* Novik, V. I. (N. N. Petrov Sci. Res. Inst. Oncol., Leningrad, USSR). *Vop Onkol* 14(3):79-86, 1968.

8465 HIRSCHSPRUNG'S DISEASE WITH TOTAL AGANGLIONIC COLON. (MEGACOLON CONGENITUM WITHOUT MEGACOLON). *(Ger.)* Herzog, B. (Child. Hosp., Basel, Switzerland). *Helv Chir Acta* 34(5):446-448, 1967.

8466 FECALOMA OF THE RECTAL CUL-DE-SAC FOLLOWING DUHAMEL'S OPERATION. [CASE REPORT] *(Fr.)* Pagès, R. (Hosp. Ctr., Saint-Denis, France). *Ann Chir Infant* 8(3):193-200, 1967.

8467 DIVERTICULA OF THE COLON. *(Por.)* Paulino, F. (Med. Fac., U. Federal Goias, Brazil). *Rev Goiana Med* 14(1/2):113-116, 1968.

8468 RADIOLOGICAL CONSIDERATIONS OF MULTIPLE CANCER OF THE LARGE INTESTINE. *(It.)* Nicodemi, D. (S. Camillo Hosp., Rome, Italy) and C. Gori. *Nunt Radiol* 23(11):1447-1459, 1967.

8469 VOLVULUS OF THE CECUM. (CLINICAL CONTRIBUTION). *(It.)* Pescatore, S. (A. Cardarelli Hosp., Naples, Italy) and G. Masturzo. *Rass Int Clin Ter* 47(15):864-871, 1967.

## LARGE INTESTINE

8470 **DISEASES OF THE LARGE INTESTINE AND THEIR SURGICAL INDICATIONS IN THE ELDERLY. (EXCLUDING OBSTRUCTIONS).** *(It.)* Pelloja, M. (Inst. Gen. Clin. Surg., U. Florence, Italy). *Arch Atte Soc Chir* 1(Part 2):753-857, 1967.

8471 **A CASE OF SPONTANEOUS RUPTURE OF THE COLON WITH HAEMOPERITONEUM AND RECTAL BLEEDING.** *(E.)* Christeas, N. (King Paul Hosp., Athens U., Greece), B. Georgoulis and E. Hadzigiannakis. *Brit J Surg* 56(4):310-311, 1969.

8472 **INGUINAL HERNIA AND COLON CANCER.** *(E.)* Lamis, P. A. (Atlanta, Ga). *J Med Ass Georgia* 58(7):333-334, 1969.

8473 **DIVERTICULAR DISEASE OF THE COLON.** *(E.)* Castro, A. F. (Washington, D. C.). *Southern Med J* 62(8):991-994, 1969.

8474 **ACUTE APPENDICITIS: CLINICAL VS. PATHOLOGIC DIAGNOSIS. [CASE REPORT]** *(E.)* Ferguson, E. Jr (St. Vincent's Hosp., Jacksonville, Fla.) and D. Pirrung. *Amer J Proctal* 20(4):269-279, 1969.

8475 **PNEUMATOSIS CYSTOIDES INTESTINALIS. REPORT OF 22 CASES.** *(E.)* Cutler, D. (November 20 Hosp. Ctr., Mexico City), P. Maldonado and J. Garcia-Luna. *Amer J Proctol* 20(4):261-268, 1969.

8476 **AMOEBOMA OF THE LARGE GUT. A REPORT OF NINE CASES.** *(E.)* Sharma, G. C. (S. M. S. Med. Coll. Hosp., Jaipur, India), R. K. Harneja, M. L. Sharma, K. N. Bhargava and K. C. Gangwall. *Amer J Proctol* 20(4):289-299, 1969.

8477 **ABDOMINAL ABSCESS DUE TO HELMINTHOMA OF THE ASCENDING COLON.** *(E.)* Marshall, D. G. (St. Josphe's Hosp., London, Canada) and S. I. Deneka. *Canad Med Ass J* 100(19):913-914, 1969.

8478 **DIAGNOSTIC DIFFICULTIES AND MORTALITY OF ACUTE APPENDICITIS.** *(Fin.)* Heinonen, R. (Dept. Surg., Turku U., Finland) and B. Thomasson. *Duodecim* 85(11):689-695, 1969.

8479 **PHLEGMONOUS COLITIS. REPORT OF A CASE.** *(E.)* Gerard, P. W. (Naval Hosp., Charleston, S. C.). *Amer J Clin Path* 51(3):338-343, 1969.

8480 **SECONDARY CARCINOMA FROM THE CERVIX INVOLVING THE LARGE BOWEL.** *(E.)* Fraser, A. M. (Westminster Hosp., London, England) and M. N. Morgan. *Brit J Surg* 56(4):317-318, 1969.

8481 **PERFORATED APPENDIX. INFLUENCE OF OUTBREAK OF INFLUENZA. [CASE REREPORT]** *(E.)* Nealon, T. F. Jr. (New York U. Sch. Med., N. Y.), J. Mackrell, C. E. Grossi and W. F. Mitty, Jr. *New York J Med* 69(5):685-686, 1969.

8482 **TOTAL AGANGLIONOSIS OF THE COLON: RECOGNITION AND MANAGEMENT. [CASE REPORT]** *(E.)* Soltero-Harrington, L. R. (Hosp. Maestro, Hato Rey, Puerto Rico), R. Garcia-Rinaldi and L. W. Able. *J Pediat Surg* 4(3):330-338, 1969.

8483 **ON THE SIGNIFICANCE OF STUDYING THE ANAL REFLEX IN SOME PROCTOLOGIC DISEASES.** *(E.)* Aminev, A. M. (Kuibyshev Med. Inst., U.S.S.R.) and V. A. Amineva. *Amer J Proctol* 20(5):339-342, 1969.

8484 **PUNCH BIOPSY OF TUMORS OF THE RECTUM AND PARARECTAL AREA.** *(E.)* Baron, J. I. (Minist. Hlth. RSFSR, Moscow, USSR). *Amer J Proctol* 20(5):347-350, 1969.

8485 **SKIN GRAFTING IN THE TREATMENT OF FISTULA IN ANO 938 CASES).** *(E.)* Vajrabukka, C. (Fac. Med., Chulalongkorn U., Bangkok, Thailand). *Amer J Proctol* 20(5):368-371, 1969.

8486 **GLOMANGIOMA OF THE LARGE INTESTINE MESENTERY. [CASE REPORT]** *(Rus.)* Linchenko, I. F. (Stavropol Med. Inst., USSR) and Ie. M. Gumilevskaia. *Vop Onkol* 13(11):108-109, 1967.

8487 **ERRONEOUS DIAGNOSIS OF INTESTINAL ACTINOMYCOSIS.** *(Rus.)* Omeliashko, A. A. (Ivano-Frankovsk Med. Inst., USSR) and V. P. Nechiporenko. *Klin Khir (Kiev)* (10):66-68, 1967.

8488 **INTRA-ABDOMINAL RESECTION OF THE RECTUM IN CANCER.** *(Rus.)* Goznyi, A. D. (Kharkov Regional Oncol. Dispensary, USSR). *Klin Khir (Kiev)* (11):58-60, 1967.

8489 **PRIMARY CANCER OF THE APPENDIX. [CASE REPORT]** *(Rus.)* Sekhvits, G. A. (Rubezhan Munic. Hosp., USSR) and V. M. Zybin. *Klin Khir (Kiev)* (11):60, 1967.

8490 **MEGARECTUM IN CHILDREN.** *(Sp.)* Buhamel, B. (Paris, France). *Anal Hosp Santa Cruz* 27(6):573-578, 1967.

8491 **TREATMENT OF RECTUM PROLAPSE IN CHILDREN.** *(Rus.)* Gulin, V. A. (Kuybyshev Med. Inst., USSR). *Klin Khir (Kiev)* (12):63-66, 1967.

8492 **SURGICAL TREATMENT OF SOME CONGENITAL DISTURBANCES OF LARGE INTESTINE DEVELOPMENT.** *(Rus.)* Kushch, N. L. (Donetsk Med. Inst., USSR). *Klin Khir (Kiev)* (11):36-40, 1967.

8493 **SOME ERRORS IN RECOGNIZING INTRA-ABDOMINAL BLEEDING AFTER APPENDECTOMIES.** *(Rus.)* Fed'ko, S. V. (2nd Nikopol'skoi Munic. Hosp., USSR). *Klin Khir (Kiev)* (11):54-55, 1967.

## LARGE INTESTINE

8494 ANALYSIS OF 3,000 CLINICAL FINDINGS OF ACUTE APPENDICITIS AND AFTEREFFECTS OF SURGERY. *(Rus.)* Gurevich, G. M. (Kharkov Med. Stomatol, Inst., USSR), Iu. V. Matviienko, V. M. Blank, L. G. Senkevich and Z. S. Grebeniuk. *Klin Khir (Kiev)* (11):21-23, 1967.

8495 SURGERY FOR SLIDING LARGE INTESTINE HERNIAS. *(Rus.)* Deinekoa, I. Ia. (N. I. Pirogov Odessa Med. Inst., USSR) and A. V. Il'iashenko. *Klin Khir (Kiev)* (11):40-43, 1967.

8496 A CASE OF ACUTE APPENDICITIS IN A NEWBORN. *(It.)* Monti, G. (Inst. Anat. Pathol. Histol., U. Modena, Italy) and G. A. Scilabra. *Arch De Vecchi Anat Pat* 49(3):983-995, 1967.

8497 DOUBLE ROW INTESTINAL SUTURE WITHOUT SEIZING THE MUCOUS MEMBRANE. *(Rus.)* Seit-Umerov, S. M. (Vladivostok Med. Inst., USSR). *Klin Khir (Kiev)* (10):54-56, 1967.

8498 PERSONAL EXPERIENCE WITH RECTAL MYECTOMY IN THE TREATMENT OF SELECTED CASES OF AGANGLIONIC MEGACOLON. *(E.)* Lynn, H. B. (Mayo Grad. Sch. Med., Rochester, Minn.). *Z Kinderchir* 5(Suppl.):98-103, 1968.

8499 POLYPOID HAMARTOMAS OF THE RECTUM. (FIRST FRENCH OBSERVATION). *(Fr.)* Benoit, M., R. Demarez, J. Luez and J. P. Creange. *Lille Med* 13(4):463-465, 1968.

8500 CANCER OF THE TRANSVERSE COLON. EXTENSIVE SURGERY. *(Sp.)* Garriz, R. A. (Rawson Hosp ., Buenos Aires, Argentina), H. Santangelo, A. F. Valoni and E. S. Lucheti. *Prensa Med Argent* 55(38): 1813-1815, 1968.

8501 CARCINOID OF THE APPENDIX. A CASE FOUND DURING A CESARIAN OPERATION. *(Sp.)* Valdivia P., E., R. Galdos H., J. García G., and J. Taiman L. *Acta Cancer* 7(3):135-150, 1968.

8502 A CASE OF CONGENITAL ABSENCE OF THE APPENDIX. *(It.)* Angrisani, G. (Inst. Semeiotic Surg., U. Naples, Italy) and M. Monaco. *Riv Gastroent* 20(3):211-218, 1968.

8503 LOCALIZED SUBMUCOSAL MUCOUS CYSTS OF THE RECTUM (COLITIS CYSTICA PROFUNDA). [CASE REPORT] *(E.)* Sullivan, J. J. (Royal Brisbane Hosp., Australia), W. D. Friend and J. F. Lee. *Med J Aust* 1(4):133-135, 1968.

8504 CURRENT CONCEPTS IN THE TREATMENT OF HEMORRHOIDS. *(E.)* Foote, R. F. (Loma Linda U. Coll. Med., Los Angeles, Calif.). *Int Surg* 50(1): 112-119, 1968.

8505 VOLVULUS OF THE COLON. *(E.)* Andrews, E. C. (U. Texas Med. Sch., San Antonia), L. Zorrilla and W. W. Nichol. *Rev Surg* 25(6):444-445, 1968.

8506 ATLAS OF THE OPERATIONS ON THE RECTUM AND COLON. *(E.)* Rygick, A. H. Moscow, Moscow Clin. Hosp. No. 67, 1968. 333 pp.

8507 INTESTINAL OBSTRUCTION DUE TO ASCARIASIS. *(E.)* Oluwasanmi, J. O. (U. Coll. Hosp., Ibadan, Nigeria). *Ghana Med J* 7(3):149-152, 1968.

8508 CLINICAL AND MORPHOLOGICAL COMPARISONS IN ACUTE APPENDICITIS IN THE ELDERLY. *(Rus.)* Iunusov, M. Iu. (Tashkent Med. Inst., USSR) and L. Ie. Kremenetskaia. *Med Zh Uzbek* (5):13-17, 1969.

8509 LATE RESULTS OF OPERATIONS FOR CARCINOMA OF THE LARGE INTESTINE. *(Gr.)* Alivisatos, C. N. (Surg. Clin., U. Athens, Greece), C. N. Bonellos, N. S. Oeconomos, M. G. Filippakis and A. N. Romanos. *Acta Chir Hellen* (1):65-69, 1969.

8510 CARCINOMAS OF THE LARGE INTESTINE TREATED AT THE LONDON HOSPITAL BETWEEN THE YEARS 1937 AND 1966 INCLUSIVE. *(E.)* Butler, E. C. *Acta Chir Hellen* (1):60-64, 1969.

8511 APPENDICITIS AND CANCER OF THE RIGHT COLON. *(Gr.)* Christeas, N. (1st Dept. Surg., U. Athens, Greece), B. Georgoulis, J. Gogas and D. Katsikas. *Acta Chir Hellen* (1):54-59, 1969.

8512 COLITIS IN CHILDREN. *(E.)* Nixon, H. A. *Acta Chir Hellen* (1):91-94, 1969.

8513 FISSURE-IN-ANO. *(E.)* Lord, P. *Acta Chir Hellen* (1):131-132, 1969.

8514 HAEMORRHOIDS–FACT, FALLACY AND FASHION. *(E.)* Gazet, J. C. *Acta Chir Hellen* (1):122-130, 1969.

8515 FISTULA IN ANO. *(E.)* Todd, I. P. *Acta Chir Hellen* (1):138-139, 1969.

8516 A CASE OF ACUTE APPENDICITIS IN A PREMATURE INFANT. *(Rus.)* Zgrivets, S. G. (Munic. Child. Hosp., No. 1, Makevka, USSR) and G. P. Sud'ia. *Pediatriia* 48(6):74-75, 1969.

8517 ULCEROUS DISORDERS OF THE INTESTINES DURING MEGALOCYTOSIS. *(Rus.)* Samokhin, P. A. (Cheliabinsk Med. Inst., USSR), L. L. Nikitina and N. S. Panova. *Pediatriia* 48(6):70-74, 1969.

8518 NECROTIZING COLITIS. [CASE REPORT] *(E.)* Gross, R. S. (San Francisco Gen. Hosp., Calif.). *Amer J Surg* 118(4):619-622, 1969.

8519 SCLERODERMA WITH DIVERTICULOSIS AND COLONIC OBSTRUCTION. [CASE REPORT] *(E.)* Compton, R. (San Francisco Gen. Hosp., Calif.). *Amer J Surg* 118(4):602-606, 1969.

8520 ERRONEOUS DIAGNOSIS OF ACUTE APPENDICITIS. (DATA FROM DISTRICT HEALTH INSTITUTIONS OF THE DONETSK REGION.) *(Rus.)* Bogoslavskii, R. V. (Donetsk Med. Inst., USSR), D. M. Ialovetskii, A. I. Siverskii, A. A. Ivanenko, M. M. Cahban and Iu. N. Lavrukhin. *Klin Khir (Kiev)* (5):46-48, 1969.

8521 GENERAL PATHOLOGICAL AND ANATOMICAL DATA ON CHRONIC APPENDICITIS AND ITS MORPHOLOGICAL FORMS. *(Rus.)* Dal', M. K. (Kiev, USSR). *Klin Khir (Kiev)* (5):1-5, 1969.

8522 A CASE OF PROFUSE BLEEDING IN THE LUMEN OF THE CECUM AFTER AN APPENDECTOMY. *(Rus.)* Kissin, A. G. (S. P. Botkin Moscow Munic. Clin. Hosp., USSR). *Klin Khir (Kiev)* (3):70-71, 1968.

8523 ENTEROCYSTOMA OF THE MESENTERY OF THE SIGMOID COLON. *(Rus.)* Piatigorskaia, M. S. (N. I. Pirogov Regional Hosp., Vinnitsa, USSR). *Klin Khir (Kiev)* (3):76, 1968.

8524 OVARIAN APOPLEXY AND ACUTE APPENDICITIS. *(Rus.)* Dekhtiar', Ie. G. (Moscow Munic. Clin. Hosp. No. 18, USSR) and I. M. Klubok. *Klin Khir (Kiev)* (2):48-49, 1968.

8525 STRICTURE OF A RECTAL PROLAPSE WITH A POLYP. A CLINICAL CASE. *(It.)* Guerra, L. (Inst. Clin. Surg. U. Genoa, Italy) and P. Bargero. *Rass Arch Chir* 6(6Bis):598-607, 1968.

8526 TWO CASES OF SARCOMA OF THE RECTUM (ANGIOSARCOMA AND MELANOSARCOMA). *(It.)* Guerra, L. (Inst. Clin. Gen. Surg., U. Genoa, Italy) and C. Barretti. *Rass Arch Chir* 6(6Bis):570-578, 1968.

8527 PHYSIOPATHOLOGY OF THE INTERNAL SPHINCTER OF THE ANUS. *(Fr.)* Duhamel, B. *Mem Acad Chir* 94(12/13):402-409, 1968.

8528 CROHN'S DISEASE OF THE RECTUM. *(Sp.)* Kyle, J., T. P. Cole and S. W. R. Ewen. *Prensa Med Argent* 56(11):470-473, 1969.

8529 COMPARISON OF THE VALUE OF RADIOLOGICAL EXAMINATION WITH OTHER METHODS OF CLINICAL INVESTIGATIONS IN THE DIAGNOSIS OF CANCER OF THE COLON. *(Pol.)* Kulicz, A. (Radiol. Inst., Silesian Acad. Med., Zabrze, Poland). *Pol Tyg Lek* 23(37):1404-1406, 1968.

8530 A CASE OF ACTINOMYCOSIS OF THE CECUM CURED BY HEMICOLECTOMY. *(Pol.)* Zwierzchowska, A. (Provincial Hosp., Warsaw, Poland). *Pol Tyg Lek* 23(36):1366-1367, 1968.

8531 PROCTOLOGY AND PSYCHIATRY: HYPNOTISM AND CONDITIONED REFLEX THERAPY IN PROCTOLOGIC DISORDERS. *(E.)* Rothman, I. (Philadelphia, Pa.). *J Amer Osteopath Ass* 67(10):1168-1174, 1968.

8532 THE INCIDENCE OF BACTEREMIA IN DOGS FOLLOWING HYDROGEN PEROXIDE LAVAGE OF THE COLON. *(E.)* Brodeur, A. E. (Saint Louis U. Sch. Med., Mo.), J. M. Hartong, R. W. Mussetti and R. K. Danis. *J Pediat Surg* 3(1):50-52, 1968.

8533 ACUTE SOLITARY DIVERTICULITIS OF THE CECUM. *(E.)* Riesenfeld, G. (Rothschild Munic. Hosp., Haifa, Israel). *Int Surg* 49(1):50-61, 1968.

8534 METASTATIC TUMOR OF THE THUMB FROM ADENOCARCINOMA OF THE COLON. *(E.)* Guttmann, G. (Philadelphia, Pa.) and I. Stein. *Int Surg* 49(2):217-221, 1968.

8535 METACHRONOUS MULTIPLE LEIOMYOMAS IN THE COLON. *(E.)* Peltokallio, P. (Dept. Surg., U. Cent. Hosp., Helsinki, Finland). *Ann Chir Gynaec Fenn* 57(2):229-233, 1968.

8536 GENERALIZED FAMILIAL POLYPOSIS. SURGICAL TREATMENT CONSERVING THE RECTUM. *(Sp.)* Garriz, R. A. (Rawson Hosp., Buenos Aires, Argentina), H. Santangelo, E. Milesi and J. R. Martin. *Prensa Med Argent* 55(38):1824-1826, 1968.

8537 GENERAL FINDINGS FROM AN ANALYSIS OF DEATHS FROM COMPLICATED APPENDICITIS. *(Rus.)* Fishbein, A. V. (Lvov Munic. Dept. Hlth., USSR). *Klin Khir (Kiev)* (9):60-62, 1968.

8538 NATURE OF THE PAIN IN DIFFERENT STAGES OF RECTUM CANCER. *(Rus.)* Martynenko, A. M. (Tulsk Regional Oncol. Dispensary, USSR). *Klin Khir (Kiev)* (9):55-57, 1968.

8539 APPENDICITIS–OFTEN A SURGICAL ENIGMA. A CASE REPORT. *(E.)* Eckhouse, M. I. (840th Tactical Hosp., Lockbourne Air Force Base, Ohio), A. F. Petti and M. C. Reddix. *J Nat Med Ass* 60(1):13-15, 1968.

8540 DYNAMICS OF EOSINOPHILS IN THE BLOOD DURING ACUTE APPENDICITIS AND APPENDICULAR PERITONITIS IN CHILDREN. *(Rus.)* Vishnevskii, Ie. L. (Munic. Hosp. No. 1, Tula, USSR), S. A. Petrenko, V. P. Baidalinov and V. N. Noritsyn. *Vop Okhr Materin Dets* 13(9):89-90, 1968.

8541 RECTOROMANOSCOPIC CHANGES FOUND IN DIFFERENT INTESTINAL DISEASES IN CHILDREN. *(Rus.)* Neverova, Ie. I. (Sci. Res. Inst. Child. Infect., Leningrad, USSR). *Vop Okhr Materin Dets* 13(5):85-86, 1968.

## LARGE INTESTINE

8542 **THE MALLORY-WEISS SYNDROME: AN UNUSUAL MANIFESTATION OF ACUTE APPENDICITIS WITH PERFORATION AND ABSCESS FORMATION.** *(E.)* Wilder, W. M. (Shreveport, La.). *J Louisiana Med Soc* 120(12):477-479, 1968.

8543 **COLOSTOMY PERFORATION DUE TO CATHETER IRRIGATION. A REVIEW.** *(E.)* Harris, H. S. Jr. (Ellis Fischel State Cancer Hosp., Columbia, Mo.). *Missouri Med* 65(12):992-994, 1968.

8544 **A COMBINATION OF HEMANGIOENDOTHELIOMA AND POLYPOSIS OF THE LARGE INTESTINE.** *(Rus.)* Kochubailo, A. S. (Beregov Cent. Regional Hosp., USSR). *Klin Khir (Kiev)* (8):52-54, 1968.

8545 **MELANOBLASTOMA OF THE CECUM.** *(Rus.)* Zimovksii, V. L. (Odessa Med. Inst., USSR). *Klin Khir (Kiev)* (8):54-55, 1968.

8546 **THALAMIC TRACTOTOMY IN TREATING PERSISTENT PAIN DUE TO INOPERABLE CANCER OF THE COLON AND RECTUM.** *(Sp.)* Fairman, D. *Prensa Med Argent* 56(7):317-324, 1969.

See also: 7788,7884,7904,8124,8174,8194,8262,8287,8290,8294,8310,8314,8321,8405,8838

## Ulcerative Colitis

8547 **IMMUNOGLOBULIN-CONTAINING CELLS IN NORMAL JEJUNAL MUCOSA AND IN ULCERATIVE COLITIS AND REGIONAL ENTERITIS.** *(E.)* Soltoft, J. (Munic. Hosp., Copenhagen, Denmark). *Scand J Gastroent* 4(4):353-360, 1969.

Immunofluoresence microscopy studies of jejunal biopsies from 8 controls, 9 patients with Crohn's disease, and 6 patients with ulcerative colitis are reported. Quantitation of IgA-, IgM-, and IgG-containing cells was made. In Crohn's disease and ulcerative colitis an increased amount of plasma cells was found and in ulcerative colitis a higher proportion of IgM- and IgG-containing cells.

8548 **ABSORPTION OF ELECTROLYTES FROM THE COLON IN CASES OF ULCERATIVE COLITIS AND IN CONTROL SUBJECTS.** *(E.)* Gooptu, D. (Radcliffe Infirm., Oxford, England), S. C. Truelove and G. T. Warner. *Gut* 10(7):555-561, 1969.

Colonic absorption of sodium, potassium, magnesium, and calcium was studied in the normal human colon and in ulcerative colitis by means of radioactive isotopes introduced per rectum in isotonic solutions. Sodium, magnesium, and calcium were readily absorbed from the normal colon but potassium was only minimally absorbed, probably by diffusion. The blood levels of sodium, magnesium, and calcium continued to rise for 2 or 3 hr after instillation in the colon and then remained steady for the remainder of the 5 hr experimental period. In ulcerative colitis, the blood levels of sodium, magnesium, and calcium rose to much higher levels than in control subjects, but absorption of potassium remained low as in normal subjects. As far as sodium is concerned, the high blood levels in ulcerative colitis can safely be taken to represent enhanced absorption, because studies of the rate of clearance of radioactive sodium injected i.v. showed no appreciable difference between ulcerative colitis patients and controls. The possible mechanisms underlying the enhanced capacity of the colon to absorb sodium, magnesium, and calcium in ulcerative colitis are discussed. The apparent paradox is that depletion of these cations is not infrequent in ulcerative colitis in spite of the enhanced capacity of the colon in this disease to absorb these ions.

8549 **ULCERATIVE COLITIS AND THE COMMUNICATION PROCESS.** *(E.)* Fry, W. F. Jr. (Coll. Med., Stanford U., Calif.). *Amer J Orthopsychiat* 39(3):484-492, 1969.

8550 **CURRENT DRUG THERAPY IN ULCERATIVE COLITIS.** *(E.)* Sama, S. K. (All India Inst. Med. Sci., New Delhi) and H. Singh. *Indian Pract* 22(1):23-26, 1969.

8551 **ULCERATIVE DISEASE OF THE BOWEL. [EDITORIAL]** *(E.)* Overstreet, S. A. *J Kentucky Med Ass* 67(5):432-433, 1969.

8552 **ONE-MINUTE ILEOCOLOPLASTY IN A CASE OF NONSPECIFIC ULCERATIVE COLITIS.** *(Rus.)* Semenov, V. P. (Donetsk Med. Inst., USSR). *Klin Khir (Kiev)* (9):69, 1968.

8553 **LOCAL AND SYSTEMIC COMPLICATIONS OF ULCERATIVE COLITIS.** *(E.)* Danovitch, S. (NIAMD, Bethesda, Md.). *GP* 37(3):78-84, 1968.

8554 **WHEN IS SURGICAL INTERVENTION ADVISABLE IN ULCERATIVE COLITIS?** *(E.)* Deckler, D. G. (Interboro Med. Plaza, Brooklyn, N. Y.). *J Amer Osteopath Ass* 67(7):774-778, 1968.

8555 **SUBACUTE IDIOPATHIC ULCERATIVE COLITIS.** *(Ser.)* Kosanović-Ćetković, D. (Med. Fac., U. Belgrade, Yugoslavia) and A. Popović. *Srpcki Arh Celok Lek* 96(3):301-306, 1968.

8556 **USE OF A HIGHLY CONCENTRATED COLIBACTERIN IN A COMPLEX TREATMENT OF NONSPECIFIC ULCERATIVE COLITIS.** *(Rus.)* Iukhvidova, Zh. M. (Sci. Res. Lab. Proctol., Gorky, USSR), M. Kh. Levitan, M. Ie. Blant, O. P. Marko, N. A. Komarova and N. V. Minchuk. *Sovet Med* 32(6):107-111, 1969.

8557 **CONSERVATIVE TREATMENT OF ULCERATIVE COLITIS. LATE RESULTS.** *(Gr.)* Nicolaidis, C., E. Kalliterakis, N. Kralios and C. Antoniou. *Acta Chir Hellen* (1):109-115, 1969.

8558 **ULCERATIVE COLITIS. INDICATIONS FOR SURGERY AND CHOICE OF OPERATION.** *(E.)* Ramsay, G. *Acta Chir Hellen* (1):95-99, 1969.

8559 **CHRONIC ULCERATIVE COLITIS ASSOCIATED WITH MALIGNANT DISEASE. [CASE REPORT]** *(E.)* Peltokallio, P. (U. Cent. Hosp., Helsinki, Finland). *Ann Chir Gynaec Fenn* 57(2):225-228, 1968.

## PANCREAS

**8560** **THE TREATMENT OF PANCREATIC ASCITES.** *(E.)* Cameron, J. L. (Johns Hopkins U. Sch. Med., Baltimore, Md.), R. K. Brawley, H. W. Bender and G. D. Zuidema. *Ann Surg* 170(4):668-676, 1969.

The medical and surgical management of pancreatic ascites in 9 patients (5 men and 4 women) is presented. The duration of the ascites ranged from 1 week to 18 months. Two patients had a history of pancreatitis; 8 of the 9 patients had a history of alcoholic intake ranging from light to heavy. There was minimal liver disease in 2 patients. Surgery was performed in 6 patients, 3 of whom had pseudocysts, 2 had disruption of the pancreatic duct and 1 had duct strictures. In the 3 patients with pseudocysts, excision of the cyst was performed in 2 patients (1 received Roux-en-Y drainage and sphincterotomy) and cystogastrostomy was performed in the third. In the 2 patients with disruption of the pancreatic duct, 1 received Roux-en-Y drainage of the duct leak and an exploratory laparotomy with operative pancreatogram was performed in the other. The Puestow procedure was carried out on the patient with duct strictures. The remaining 3 patients were treated medically. Seven patients were asymptomatic and free of ascites from 3 months to 3 yr after treatment. The patient receiving the cystogastrostomy died 2 weeks postoperatively. One of the patients treated medically was asymptomatic with ascites.

**8561** **AN EVALUATION OF PANCREATOGRAPHY IN SUSPECTED PANCREATIC DISEASE.** *(E.)* Howard J. M. (Hahnemann Med. Coll., Philadelphia, Pa.) and W. F. Short. *Surg Gynec Obstet* 129(2):319-324, 1969.

Pancreatography at operation proved safe and informative in 26 patients. The technique must be adapted to the findings at operation. Pancreatography in the normal gland often results in a high serum amylase and lipase level as well as a striking increment in the urinary excretion of amylase, but these enzymatic changes are not paralleled by recognizable complications (acute pancreatitis or pancreatic necrosis). Of 23 patients with pancreatitis (6), or suspected pancreatitis, (normals 12, duodenal disease 1, pseudocyst 3, anomaly 1), the pancreatic duct was completely obstructed in only 1 patient. Conversely, of 3 patients with carcinoma in, or around, the head of the pancreas, the obstruction was complete in 2.

**8562** **PRESENT STATE OF TREATING ACUTE PANCREOPATHIES.** *(Sp.)* Gallart-Esquerdo, A. (Nuestra Señora Sagrodo Corazón de Jesus Hosp., Barcelona, Spain). *Fegato* 15(1):97-111, 1969.

The preferred treatment of acute, aseptic or necrotic pancreopathy should be medical when the diagnosis is certain; an exploratory laparotomy must be done when the diagnosis is doubtful, and only when there is an abscess or a pseudocyst is surgery necessary. Medical treatment must be early, consisting complete fasting for 6-8 days, continuous gastric aspiration and i.v. injection of Kraut's or Kunitz's inhibitors of kalliprein – trypsin enzyme, and i.m. injections of chymotrypsin, atropine sulfate, and acetazolamide. Surgery, when necessary, should be done under general anesthesia and with i.v. injections of Trasylol (Kraut's inhibitor). Acute purulent pancreopathy must be surgically treated with drainage of the abscess.

**8563** **TRANSDUODENAL SPHINCTEROPLASTY (NOT SPHINCTEROTOMY) FOR BILIARY AND PANCREATIC DISEASE. INDICATIONS, CONTRA-INDICATIONS, AND RESULTS.** *(E.)* Jones, S. A. (U. California, Irvine), R. A. Steedman, T. B. Keller and L. L. Smith. *Amer J Surg* 118(2):292-306, 1969.

Several constricting mechanisms may obstruct the common and/or pancreatic duct. These muscles may function independently of one another. An ideal procedure to prevent residual or recurrent common duct stones should produce a permanent distal stoma of a caliber equal to that of the common duct, and completely eliminate the constricting muscular mechanism. This can be accomplished by sphincteroplasty but not by sphincterotomy. Sphincteroplasty is advised for the prophylaxis and treatment of bile duct obstruction and when irremovable hepatic duct stones are present. Sphincteroplasty is not recommended as a prophylactic procedure when only a few large stones are present. During the past 17 yr transduodenal sphincteroplasty was performed on 241 patients; 126 male, 115 female; ages 19-81, average age 49. Follow up ranged from 6 months to 15 yr 2 months, average 5 yr 3 months. Indications for surgery were recurrent pancreatitis in 95 and extrahepatic biliary obstruction in 146. Of the 95 patients with recurrent pancreatitis and no intrapancreatic ductal obstruction (where obviously sphincteroplasty will be of no benefit) 90.5% were improved or asymptomatic after sphincteroplasty. In 50 of these patients, with no calculus disease, the benefits derived appear to be due to the sphincteroplasty. All of the 146 patients with extrahepatic biliary tract obstruction were relieved of symptoms by sphincteroplasty. In 139 of these operated upon for multiple common duct stones, no recurrent or residual stones developed after sphincteroplasty. If any degree of ampullary stenosis exists, it should be eliminated by sphincteroplasty at the time of choledocholithotomy. A pancreatic ductogram is important in selecting the surgical approach in patients with recurrent pancreatitis. In this series of 241 sphincteroplasties, the overall mortality was 1.24%, morbidity 4.9%.

**8564** **STUDY OF PANCREOPATHIES OBSERVED IN 3 GENERATIONS OF THE SAME FAMILY.** *(Fr.)* Paris, J., J. P. Farriaux, A. Gérard and P. Merveille. *Lille Med* 14(5):588-594, 1969.

Studies are presented of 3 patients (a father and 2 sons; a child of 1 of the sons died of mucoviscidosis with calcific chronic pancreatitis. Diagnosis revealed that the father had an advanced stage of pancreatolith, a dislocated duodenum, amylemia, amylorrhea, and hyperglycemia. During surgery a hypertrophic head of the pancreas was found. Drainage by Doubilet's method and a laterolateral choledochoduodenostomy were performed, with good results. The 1st son, with calcification of the pancreas, showed normal values of blood and urine amylase, and alterations in carbohydrate metabolism. He was treated medically but his condition did not improve greatly. The 2nd son presented calculi of the pancreas with a dislocated duodenum and common bile duct, normal amylase, hyperglycemia, and significant glycosuria. The diabetes was controlled by insulin.

## PANCREAS

8565 THE ASSOCIATION BETWEEN CARCINOMA OF THE PANCREAS AND DIABETES MELLITUS. *(E.)* Karmody, A. J. (Royal Infirm., Aberdeen, Scotland) and J. Kyle. *Brit J Surg* 56(5):362-364, 1969.

All patients with proven carcinoma of the pancreas in Northeastern Scotland during 1955-67 were studied for disturbance of carbohydrate metabolism. Of the 256 pancreatic carcinoma patients, 51 had glycosuria and hyperglycemia. Most of the 51 (40) were over 60 yr of age, and their metabolism was difficult to control. In 45 of the patients with both conditions, the 2 diagnoses were made within 2 yr of each other, and 25 were made within 3 months. The carbohydrate abnormality was probably caused by the carcinoma but the mechanism is unknown. Unstable hyperglycemia and glycosuria in patients over 60 yr of age is a valuable early warning sign of carcinoma of the pancreas. Six patients had had diabetes mellitus for over 2 yr. The incidence of pancreatic carcinoma in true diabetics is greater than can be accounted for by chance.

8566 PANCREATIC-PULMONARY FISTULA. *(It.)* Conte, R. (S. Maria di Loreto Hosp., Naples, Italy) and A. Breglia. *Rass Int Clin Ter* 47(23):1323-1330, 1967.

8567 PANCREATIC HETEROTOPIA. *(E.)* Dietz, M. W. (U. Missouri Sch. Med., Springfield). *Missouri Med* 65(8):665-668, 1968.

8568 RESULTS OF SURGICAL TREATMENT OF PANCREATODUODENAL CARCINOMA. *(E.)* Štulhofer, M. (Dr. O. Novosel Gen. Hosp., Zagreb, Yugoslavia), B. Gjivan and Z. Brala. *Med J (Belgrade)* 90(5):25-29, 1968.

8569 THE PLACE OF SPHINCTEROTOMY IN THE TREATMENT OF DISEASES OF THE PANCREAS. *(E.)* Mallet-Guy, P. (Lyon U., France). *J Roy Coll Surg Edinb* 12(5):318-325, 1968.

8570 PANCREAS RUPTURE IN CLOSED ABDOMINAL TRAUMA. [CASE REPORT] *(It.)* Marrone, N. (Inst. Clin. Gen. Surg., U. Bologna, Italy) and F. Farruggia. *Clinica (Bologna)* 27(6):506-515, 1968.

8571 TUMORS OF THE PANCREAS. *(E.)* Davila, O. E. (U. Mexico) and H. Herrera. *Int Surg* 50(3):276-284, 1968.

8572 CYSTIC FIBROSIS. DIAGNOSIS. *(Fr.)* la Salle, R. (Sainte-Justine Hosp., Montreal, Canada). *Union Med (Canada)* 96(12):1535-1540, 1967.

8573 SOME RARE CONDITIONS IN CHILDHOOD INVOLVING THE PANCREAS AND DUODENUM. *(E.)* Hajdu, N. (St. George's Hosp., London, England). *Ann Radiol (Paris)* 10(9/10):675-686, 1967.

8574 ABSCESS OF PANCREAS. *(Ser.)* Lenkovic, M. (Med. Sch., Rijeka, Yugoslavia). *Acta Fac Med Fluminen* 2(1):151-160, 1967.

8575 MORPHOLOGICAL ANALYSIS OF THE EXOCRINE PART OF THE REGENERATING PANCREAS. *(Rus.)* Chichinadze, M. I. (Natishvili Inst. Exp. Morphol., Tiflis, USSR). *Biull Eksp Biol Med* 67(6): 112-114, 1969.

8576 RADICAL PANCREATODUODENECTOMY FOR PERIAMPULLARY MALIGNANCY. [CASE REPORT] *(E.)* Smith, J. W. (San Francisco Gen. Hosp., Calif.). *Amer J Surg* 118(4):646-649, 1969.

8577 STROM-ZOLLINGER-ELLISON SYNDROME. ULCEROGENIC PANCREATIC SYNDROME. *(Sp.)* Meeroff, J. C. (Prof. Dr. Gregorio Araoz Alfaro Polyclin., Madrid, Spain). *Rev Esp Enferm Apar Dig* 28(5):675-694, 1969.

8578 CYSTIC FIBROSIS OF THE PANCREAS: STUDY OF THE METHOD OF LYNCH, RAPHAEL, MELLOR, SPARE, HILLS, INWOOD. *(Sp.)* Galvez C., M. A. (A. Mann Child. Hosp., San Jose, Costa Rica). *Rev Hosp Niños Alejandro Mann* 7(1/2):33-34, 1968.

8579 INTEREST IN ARTERIOGRAPHY FOR DIAGNOSIS OF PANCREAS DISORDERS. *(Fr.)* L'Hermine, C. *Lille Med* 13(Spec. No.):1172-1180, 1968.

8580 CYSTADENOMA OF THE PANCREAS. REPORT OF A CASE. *(E.)* Knerr, W. (Riverside Methodist Hosp., Columbus, Ohio), P. H. Taylor, D. K. Heydinger and J. D. Bowers. *Ohio Med J* 64(10):1156-1157, 1968.

8581 TOTAL RUPTURE OF THE PANCREAS IN LOMBAR INJURIES. *(It.)* Tommaseo, T. and F. Pellegrino. *Chir Gastroent* 2(2):206-214, 1968.

8582 ISOLATED PANCREAS RUPTURE IN CLOSED ABDOMINAL TRAUMA. *(It.)* Descovich, P. (Inst. Special Surg. Pathol., U. Bologna, Italy), *Riv Gastroent* 20(3):149-170, 1968.

8583 FUNCTIONAL STATE OF THE PANCREAS AFTER RADICAL OPERATIONS ON THE STOMACH. *(Rus.)* Kuznetsov, N. N. *Klin Med (Moskva)* 46(4):61-65, 1968.

8584 PROLONGED REMISSION OF DIARRHEA DUE TO NONBETA ISLET CELL TUMOR OF THE PANCREAS BY RADIOTHERAPY. *(E.)* Moore, F. T. (Ohio State U. Hosp., Columbus), S. H. Nadler, D. A. Radefeld and R..M. Zollinger. *Amer J Surg* 115(6):854-855, 1968.

8585 A CALCIFYING TRAUMATIC CYST OF THE PANCREAS. *(Rus.)* Tikhonov, K. S. (Crimean Med. Inst., Simferopol, USSR). *Klin Khir (Kiev)* (3):75, 1968.

8586 SPONTANEOUS RUPTURE OF PANCREATIC CYSTS. *(Rus.)* Muzyka, K. A. (Lugansk Med. Inst., USSR) and N. A. Shor. *Klin Khir (Kiev)* (3):73, 1968.

## PANCREAS

8587 **CAVERNOUS LYMPHANGIOMA OF THE PANCREAS. [CASE REPORT]** *(E.)* Dodds, W. J. (U. California Sch. Med., San Francisco), F. R. Margolin and H. I. Goldberg. *Radiol Clin Biol* 38(4):267-270, 1969.

8588 **LYMPHANGIOMA OF THE PANCREAS WITH SYMPTOMS OF "ACUTE SURGICAL ABDOMEN".** *(E.)* Christie, J. P. (Child. Hosp. Los Angeles, Calif.) and M. S. Karlan. *Calif Med* 111(1):22-24, 1969.

8589 **PANCREATITIS. THE ROLE OF SURGERY IN TREATMENT.** *(E.)* du Val, M. K. (Coll. Med., U. Arizona, Tucson). *Rocky Mountain Med J* 66(7): 46-49, 1969.

8590 **THE NATURE OF PANCREATIC ASCITES. [CASE REPORT]** *(E.)* Kirianoff, T. (Stamford Hosp., Conn.), G. O. Strauch and J. F. Rogers. *Conn Med* 33(9):573-575, 1969.

8591 **HETEROTOPIC PANCREATIC TUMORS.** *(Rev.)(E.)* Fernald, J. M. (California Hosp., Los Angeles). *Int Surg* 52(1):44-62, 1969.

8592 **CYSTIC FIBROSIS OF THE PANCREAS. DIAGNOSIS BY SODIUM ELECTRODE SWEAT TESTS.** *(E.)* Friedlander, S. (Mercy Gen. Hosp., Sacramento, Calif.), R. E. Gasber and L. M. Lieb. *Calif Med* 110(5):367-370, 1969.

8593 **PANCREAS DISEASES AND THEIR SURGICAL INDICATIONS IN THE ELDERLY.** *(It.)* Nocentini, P. (Inst. Gen. Clin. Surg., U. Florence, Italy). *Arch Atti Soc Ital Chir* 1(Part 2):977-1028, 1967.

8594 **VASCULAR FACTORS IN THE PATHOGENESIS OF ACUTE HAEMORRHAGIC PANCREATITIS.** *(E.)* Goodhead, B. (Queen Elizabeth Hosp., Birmingham, England). *Ann Roy Coll Surg Eng* 45(2):80-97, 1969.

Pancreatitis was induced in 60 dogs by injecting trypsin-digested-blood into the pancreatic duct. All the control dogs (25) died in less than 72 hr with hemorrhagic pancreatitis (no edematous pancreatitis). The remaining animals were treated with therapeutic agents designed to prevent a reduction in blood flow in the pancreatic microcirculation. In the plasma group (13 dogs) the mortality was reduced to 30%; in the clinical dextran group (10 dogs) to 20%, and in the low molecular weight dextran group (12 dogs) to 0% (there were no deaths). In the plasma group 69% had hemorrhagic pancreatitis, clinical dextran – 50%, low molecular weight dextran-none. Immediate treatment with thrombolysin (10 dogs), and sympathetic denervation of the pancreas 5-7 days prior to induction of pancreatitis (8 dogs); both resulted in no development of hemorrhagic pancreatitis, and only mild edematous pancreatitis. In another series, the development of hemorrhagic pancreatitis was usually prevented by delayed (8-12 hr) therapy with heparin, sympathectomy or low molecular weight dextran. Pancreatic blood flow was measured using $^{86}$Rb in 19 normal dogs, 6 with sham operation, 12 with edematous pancreatitis, 16 with hemorrhagic pancreatitis – 6 of which were treated i.v. with low molecular weight dextran. In edematous pancreatitis, although the total pancreatic blood flow was increased, the perfusion of pancreatic tissue was reduced to a significant extent below normal. In hemorrhagic pancreatitis the total blood flow was 29% below normal, but in those treated with low molecular weight dextran there was no reduction. It was not possible to demonstrate activation of an important enzyme in trypsin-digested-blood induced pancreatitis. The results indicate that changes in blood flow in the pancreatic microcirculation are of crucial importance in determining the outcome of an attack of acute pancreatitis. The reduction in pancreatic blood flow in hemorrhagic pancreatitis cannot be explained solely on the basis of reflex splanchnic vasoconstriction, and a specific intrapancreatic vascular lesion appears to be an additional factor. The progression of edematous to hemorrhagic pancreatitis seems to be a continuous process, probably reversible in the first few hr. When total pancreatic blood flow and tissue perfusion are grossly reduced; defective tissue perfusion, parenchymal necrosis and hemorrhage from disrupted pancreatic blood vessels follow.

8595 **ACUTE PANCREATITIS AND PANCREATIC BLOOD FLOW.** *(E.)* Goodhead, B. (Royal Victoria Hosp., Montreal, Canada). *Surg Gynec Obstet* 129(2):331-340, 1969.

The hemodynamic changes occurring in experimental acute pancreatitis were studied in male mongrel dogs (11 to 21 kg). Pancreatic blood flow was measured with the use of the $^{86}$Rb fractionation technique. In edematous pancreatitis (12 dogs) pancreatic blood flow was increased, although the perfusion rate was decreased. The realtively benign nature of this disease was shown by the absence of any marked systemic disturbance and reflected by the finding of a normal hematocrit level and mean arterial blood pressure, plasma volume, and cardiac output. Hemorrhagic pancreatitis (10 dogs) was characterized by a severe reduction in both pancreatic blood flow and perfusion. The serious nature of this disease was reflected by the finding of a low mean arterial blood pressure, plasma volume, and cardiac output, and a high hematocrit level. Early and energetic treatment with low molecular weight dextran prevented these changes from occurring. Mean arterial blood pressure, plasma volume, hematocrit, and cardiac output remained normal, and pancreatic blood flow and perfusion were increased. Low molecular weight dextran therapy may be useful in the treatment of acute pancreatitis in man.

8596 **ACUTE PANCREATITIS IN TUNISIA. STUDY OF 21 CASES.** *(Fr.)* Mestiri, S. (E. Conseil Hosp., Tunis, Tunisia), S. Gharbi, H. Salah and H. Achour. *Lyon Chir* 65(3):441-446, 1969.

Twenty-one cases of acute pancreatitis, all secondary to lithiasis, were hospitalized between 1963 and 1968. In 10 of these cases acute pancreatitis was clinically diagnosed during episodes of gallstones (5), acute cholecystitis (3), febrile occlusion (2). In 11 cases the pancreatitis was not clinically diagnosed and was found during operation for gallstones (3), acute cholecystitis (4), febrile occlusion (2), peritonitis (1), acute cholecystitis associated with occlusive peritonitis (1). At the time of operation the pancreatic lesions were evident in most: edema, hemorrhages and necrosis were present isolated or associated. Amylase levels did not correlate with the severity of the pancreatic lesion: severe necrosis had a serum amylase level of 512 U Wohlhemuth, while edematous pancreatitis reached 2058 U. W. The operations performed were: cholecystectomy associated with pancreatic treatment, depending on the nature, topography, and severity of the pancreatic lesions; simple drainage of the posterior cavity of the omentum; secondary corporeo-caudal pancreatectomy for pancreatic fistula. In 12 cases recovered occurred, after a period ranging from 9 to 100 days. There were 4 deaths. The other 9 suffered several complication.

8597 **STUDY OF 125 CASES CLASSIFIED AS ACUTE PANCREATITIS.** *(Fr.)* Rudler, J. C. (Surg. Clin., U. Geneva, Switzerland) and R. Giuli. *Lyon Chir* 65(4):481-498, 1969.

From 1957-1967, 125 patients were hospitalized, with acute pancreatitis (100 acute pancreatitis first episode, 9 relapsing acute pancreatitis, and 16 postoperative acute pancreatitis). The diagnosis, in 50 of them, was confirmed by autopsy or surgery. Of these 50 patients, 20 (40%) died in a period between a few hr and 6 months after the disease. As etiologic factors, gallstones were present in 33, and stones of the common bile duct in 7. Blood and urine amylase determinations were not useful in diagnosis in 50% of the cases; where the level was elevated it returned to normal in 3-7 days, independent of the clinical state of the patient. Glycemia determination in 40 patients, was very useful in prognosis. Levels of blood urea nitrogen, determined 36 times, were pathologic in 64% in those who died, and were normal in 63% of the surviving. The other 50 histologically unconfirmed cases had no pathognomonic signs of acute pancreatitis at examination, but almost always had increased serum (42) and/or urinary amylase (32).

**8598 EXPERIMENTAL ACUTE PANCREATITIS IN DOGS. IV. THE RELATIONSHIP BETWEEN PHOSPHOLIPASE A AND THE HISTAMINE-RELEASING AND HYPOTENSIVE EFFECTS OF PANCREATIC EXUDATE.** *(E.)* Hagen, P. O. (Rikshospitalet, Oslo, Norway), E. Ofstad and E. Amundsen. *Scand J Gastroent* 4(1):89-96, 1969.

The relationship between the phospholipase A activity in exudate collected from dogs during experimental acute pancreatitis and the ability of the exudate to cause histamine release and hypotension have been studied. Evidence indicates that the hypotensive effect of the exudate is due to histamine release. Phospholipase A alone cannot be responsible for these effects, and neither can the cholates nor the lysophosphatidylcholine present in the exudate. The histamine-releasing effect of the exudate is unaffected by inhibirors of known histamine-releasing agents. The histamine-releasing agent of the exudate is of a large molecular weight and appears to be different from previously reported histamine-releasing agents.

**8599 THE SHWARTZMAN PHENOMENON AND ACUTE HEMORRHAGIC PANCREATITIS. A STUDY IN DOGS.** *(E.)* Bliss, W. R. (McFarland Clin., Ames, Iowa) and J. A. Sibley. *Amer J Surg* 117(5):711-714, 1969.

An attempt was made to produce hemorrhagic pancreatitis in 15 healthy dogs by a method similar to that used to demonstrate the Shwartzman phenomenon. Administration i.v. of *E. coli* filtrate to dogs 24 hr after the introduction of either normal saline, *E. coli* filtrate or *E. coli* suspension into the main pancreatic duct resulted in marked reaction in some of the dogs. In 1 dog, typical acute hemorrhagic pancreatitis was produced resulting in death 2½ hr after the i.v. injection. A reaction similar to the Shwartzman phenomenon can be reproduced in the pancreas of dogs; the pancreas of the reacting dogs appears grossly and microscopically very similar to the human pancreas with acute hemorrhagic pancreatitis, and the variations of individual sensitivity, type of organism, and the concentration of circulating endotoxin could explain the infrequency of acute hemorrhagic pancreatitis in man.

**8600 ACUTE PANCREATITIS: AN EXPERIMENTAL MODEL.** *(E.)* Waterman, N. G. (U. Louisville Sch. Med., Ky.), R. Walsky, R. Moore and R. S. Howell. *Surgery* 66(4):746-750, 1969.

Guinea pigs (103) were given bile-trypsin solution by direct infiltration into the distal body and tail of the pancreas. The severity of pancreatitis was determined by comparing the number of deaths in the experimental animals with the dose injected into the pancreas. On the 7th day after injecting 32 animals with 10% bile salt-trypsin solution only 1 was alive, of 27 receiving 7.5% solution 9 were alive, of 28 receiving 5% solution 18 were alive, and of 16 receiving 2.5% solution all were alive, as were the 10 control animals. The procedure did not require a prolonged operation or anesthetic, a complicated apparatus for retrograde infusion of the pancreatic ducts, or an alteration or disruption of the gastrointestinal or bile duct continuity. The method used in this study provides an inexpensive, reproducible experimental model for acute pancreatitis.

**8601 THE ROLE OF EARLY DIAGNOSTIC LAPAROTOMY IN ACUTE PANCREATITIS.** *(E.)* Diaco, J. F. (Hosp. U. Pennsylvania, Philadelphia), L. D. Miller and E. M. Copeland. *Surg Gynec Obstet* 129(2):263-269, 1969.

A detailed study of 231 patients (133 males, 87 females) with acute pancreatitis was undertaken to evaluate clinical features and therapeutic implications. The variable nature of the disease (alcoholism 102 patients, biliary conditions 99, idiopathic 30, hyperparathyroidism 4, hyperlipemia 2), as well as the inadequacy of any single diagnostic factor is emphasized. The mortality rate was 5.3% (11 patients) among 206 with edematous pancreatitis and 56% (14) among 25 patients with the hemorrhagic form. There are certain differences between the pancreatitis caused by alcoholism (earlier age, lower bilirubin levels, more frequent radiating epigastric pain) and gallstone disease. The mortality rates of patients treated by medical means alone, and those subjected to diagnostic laparotomy, were not statistically different. An exploratory operation should therefore be performed if the diagnosis is in doubt.

**8602 CLINICAL-LABORATORY DIAGNOSIS OF CHOLECYSTO-PANCREATITIS BEFORE SURGERY AND DURING SURGERY ON THE OPERATING TABLE.** *(Rus.)* Shabanov, A. N. (I. M. Sechenov 1st Moscow Med. Inst., USSR), S. M. Mikirtumov, R. I. Titov and V. A. Shaternikov. *Klin Khir (Kiev)* (9):31-35, 1967.

**8603 ACUTE PANCREATITIS: REVIEW OF 54 CASES.** *(Sp.)* Silva del Pozo, J. (La Paz Clin., Madrid, Spain), S. Pascual Marcos and P. Martinez Martinez. *Rev Esp Enferm Apar Dig* 27(6):915-932, 1968.

**8604 THE DIFFERENTIAL DIAGNOSIS OF EDEMA AND HEMORRHAGIC NECROSIS OF THE PANCREAS.** *(Rus.)* Gluskina, V. M. (S. M. Kirov Leningrad Inst. Postgrad. Med., USSR). *Vestn Khir Grekov* 99(9):69-72, 1967.

**8605 DIABETIC COMA AND PANCREATITIS.** *(E.)* Hayduk, K. (Dept. Med., U. Tubingen, Germany), F. Durr and P. Schollmeyer. *German Med Monthly* 13(9):432-436, 1968.

**8606 EARLY ACUTE COMPLICATIONS IN STOMACH AND INTESTINAL SURGERY: ACUTE PANCREATITIS, EVISCERATION AND VASCULAR LESIONS.** *(It.)* Selli, M. (Inst. Gen. Surg. Clin., U. Pisa, Italy). *Arch Atti Soc Ital Chir* 1(Part 1):169-225, 1968.

**8607 THE USE OF A PEPTIDASE INHIBITOR IN THE TREATMENT OF ACUTE PANCREATITIS.** *(E.)* Hansky, J. (Prince Henry's Hosp., Melbourne, Australia). *Med J Aust* 1(25):1284-1285, 1969.

8608 ACUTE PANCREATITIS. *(Rev.)(E.)* Legerton, C. W. Jr. (Med. Coll. South Carolina, Charleston). *J S Carolina Med Ass* 65(7):243-248, 1969.

8609 ACUTE PANCREATITIS. A CASE WITH TETANY. *(Nor.)* Skagseth, E. Jr. (Munic. Hosp., Oslo, Norway). *T Norsk Laegeforen* 89(11):824-825, 1969.

8610 THE MANAGEMENT OF ACUTE PANCREATITIS. *(E.)* Thompson, A. G. (Montreal Gen. Hosp., Canada), R. A. Brown and J. G. Moffat. *Canad J Surg* 10(4):403-407, 1967.

8611 ACUTE EXPERIMENTAL PANCREATITIS. INDUCTION FOR THE STUDY OF PREVENTION AND TREATMENT. *(Sp.)* Naveiro, J. J. (Ramos Mejia Hosp., Buenos Aires, Argentina), L. V. Gutierrez, S. Barg and J. Sanchez Zinny. *Rev Argent Cir* 15(5/6):172-175, 1968.

8612 SPONTANEOUS RUPTURE OF SPLEEN AND PLEURAL EFFUSION COMPLICATING PANCREATITIS. [CASE REPORT] *(E.)* Catanzaro, F. P. (St. Joseph's Hosp., Providence, R. I.), M. Abiri and S. Allegra. *Rhode Island Med J* 51(5):328-329, 1968.

8613 SEVERE HEPATIC COMA IN A PATIENT WITH CHRONIC PANCREATITIS CURED WITH CORTISONE. DEATH DUE TO ACUTE PANCREATIC NECROSIS (PANCREATITIS STEROIDS). *(Pol.)* Dyk, T. (3rd Clin. Intern. Dis., Acad. Med., Gdansk, Poland), J. Wasowski and Z. Gruca. *Pol Tyg Lek* 23(32):1206-1208, 1968.

8614 THE CHALLENGE OF SEVERE ACUTE PANCREATITIS. *(E.)* Kune, G. A. (Royal Melbourne Hosp., Australia). *Med J Aust* 2(1):8-12, 1968.

8615 PREDNISOLONE-INDUCED PANCREATITIS. *(Ger.)* Boros, G. (U. Med. Clin., Pécs, Hungary) and L. Horváth. *Zschr Inn Med* 23(22):729-732, 1968.

8616 BLOOD KININS AND PATHOGENIC TREATMENT OF ACUTE PANCREATITIS WITH AMINOPHENAZONE. *(Rus.)* Andrus, V. N. (Volgograd Med. Inst. Munic. Hosp. No. 3, USSR). *Klin Khir (Kiev)* (5):52-53, 1969.

8617 ACUTE PANCREATITIS TREATMENT. *(Rus.)* Kamaiev, M. F. (5th Clin. Hosp., Lvov, USSR) and V. V. Vashchuk. *Vrach Delo* 50(5):12-16, 1969.

See also: 7820,8214,8600,8856

# LIVER AND BILIARY TRACT

## GENERAL

**8618** **THE METABOLISM OF AMMONIA IN LIVER DISEASE: URINARY STUDIES FOLLOWING ORAL DOSES OF $^{15}$N-AMMONIUM LACTATE.** *(E.)* Stone, W. D. (Queen Elizabeth Hosp., Birmingham, England), W. B. M. Gay and C. W. Crane. *Clin Sci* 37(1):231-242, 1969.

Five normal subjects, 9 patients with liver disease and 2 with portal venous thrombosis were given small oral doses of ammonium lactate labelled with $^{15}$N (0.4 mg $^{15}$N/kg body weight). Compared with normal subjects, most patients showed a decreased labelling and excretion of $^{15}$N in urinary urea, and increased labelling and excretion of $^{15}$N in urinary ammonia. These abnormalities were most pronounced in the patients with artificial or large, natural porta-systemic shunts. Retention of isotope in the body was increased in 6 patients, including 3 with portacaval anastomoses, and was most pronounced in 4 patients treated with low-protein diets. Diversion of blood from the liver to extra-hepatic tissues was probably a major cause of the altered metabolism of ammonia shown in these experiments. This hypothesis is supported by changes observed in 1 patient after a portacaval anastomosis.

**8619** **INCIDENCE AND MECHANISM OF NEONATAL JAUNDICE RELATED TO GLUCOSE-6-PHOSPHATE DEHYDROGENASE DEFICIENCY.** *(E.)* Valaes, T. (Aghia Sophia Child. Hosp., Athens, Greece), A. Karaklis, D. Stravrakakis, K. Bavela-Stravrakakis, A. Perakis and S. A. Doxiadis. *Pediat Res* 3(5):448-458, 1969.

In 3 population surveys in Greece, the incidence of glucose-6-phosphate dehydrogenase (G-6-PD) deficiency and neonatal jaundice was examined in randomly selected male newborns. The incidence rate of G-6-PD deficiency was 2.92% in the Alexandra survey (786 from the population of Athens and southern Greece), 4.93% in the Lesbos survey (1317) and 12.5% in the Rhodes survey. In all surveys, severe jaundice without blood group incompatibility or low birth weight appeared much more frequently in G-6-PD-deficient than in normal newborns, but there were striking differences. In Lesbos, severe jaundice was found much more frequently in both G-6-PD-deficient and normal groups than in comparable groups in the other 2 surveys. Similarly, at 4 days of age, values for serum bilirubin in control groups were 9.43 ± 4.39 mg/100 ml in Lesbos and 7.88 ± 4.8 mg/100 ml in Rhodes ($p < 0.05$). These differences indicate that in Lesbos, an unknown icterogenic factor alone increases the incidence of neonatal hyperbilirubinemia and, in conjugation with G-6-PD deficiency, causes severe neonatal jaundice (serum bilirubin values higher than 16 mg/100 ml) in 43% of G-6-PD deficient infants. In the Rhodes survey, values for hemoglobin and serum bilirubin and reticulocyte count in the G-6-PD deficient group were compared with values in the cord blood and in samples of blood drawn on the 4th day of life from the control group. The G-6-PD-deficient group had lower hemoglobin values and higher serum bilirubin values than the control group. The mean values (g/100 ml) for hemoglobin in cord blood were 14.42 ± 1.24 and 15.36 ± 1.36 in the G-6-PD deficient and control groups, resp. In samples obtained at 4 days of age, the values were 15.6 ± 1.34 and 16.65 ± 1.37, resp., in the 2 groups. The mean values (mg/100 ml) for serum bilirubin in cord blood were 1.98 ± 0.64 and 1.68 ± 0.42, resp., in the 2 groups. At 4 days of age, the values were 9.86 ± 6.6 and 7.88 ± 4.8, resp. These results indicate a diminished life span of G-6-PD-deficient erythrocytes in the fetal and neonatal period.

**8620** **SPECIFIC DETERMINATION OF SERUM BILIRUBIN DIGLUCURONIDE IN PATIENTS WITH HEPATO-BILIARY DISEASES.** *(E.)* Broderson, R. (Dept. Biochemistry U. Copenhagen, Denmark) and N. Tygstrup. *Scand J Clin Lab Invest* 23(1):55-58, 1969.

Thirty-two patients with hepato-biliary disease (parenchymal disease 27, Dubin-Johnson syndrome 1, intermittent intrahepatic cholestasis 2, extrahepatic cholestatis 2) all had elevated concentrations of bilirubin digluronide in blood serum, determined with an isotope derivative method. The procedure for bilirubin diglucuronide determination consists of coupling with diazogized sulfanilic acid, labeled with $^{35}$S, an addition of a relatively large known amount of nonradioactive azopigment obtained by coupling of a standard preparation of bilirubin diglucuronide with diazotized sulfanilic acid, and isolation of part of the mixed azopigments. An elevated concentration was found even in anicteric cases with normal total bilirubin.

**8621** **IDENTIFICATION OF CERULOPLASMIN IN HUMAN LIVER CELLS BY FLUORESCENT ANTIBODIES AND ABSENCE OF THIS PROTEIN IN WILSON DISEASE.** *(E.)* Shaposhnikov, A. M. (USSR Acad. Med. Sci., Leningrad), Yu. N. Zubzitski and V. S. Shulman. *Experientia* 25(4):424-426, 1969.

Studies of slices of kidney, spleen, brain and heart obtained in autopsy from a practically normal male, aged 37 (who died of chest compression), showed no localized specific fluorescence in the cells of these organs. In liver preparations, where anoxia is extremely high, specific fluorescence was seen extracellularly (in the intercellular space). However, certain parenchymatous cells showed sites of specific fluorescence, accounted for by the organelles surrounding the cellular nucleus. In liver preparations (biopsy) from patients with Wilson's disease, specific fluorescence was detected in less than 5% of all cells; whereas in liver preparations from patients with noncongenital liver disorders it was observed in more than 70% of all cells. The liver seems to be the only human organ responsible for ceruloplasmin biosynthesis. An almost complete absence of specific fluorescence in liver cells in Wilson's disease confirms that in it there is a genetically determined inhibition of ceruloplasmin synthesis.

**8622** **METABOLIC CHANGES FOLLOWING MAJOR HEPATIC RESECTION.** *(E.)* Aronsen, K. F. (Dept. Surg., U. Lund, Malmo, Sweden), B. Ericsson and B. Pihl. *Ann Surg* 169(1):102-110, 1969.

Of 27 patients subjected to a hepatic resection since 1965, 10 were chosen who had: no biliary stasis before the operation, an uncomplicated postoperative course, and healthy residual liver tissue. Immediate postoperative metabolic changes were studied in the 10 patients. Serum potassium was substantially reduced during the first week, after which it returned to normal. Serum sodium fell immediately after operation an and remained at a subnormal level. Serum calcium remained within a normal range. Serum chloride first fell then returned to normal within a week. Standard bicarbonate increased substantially during the first 3 days and gradually returned to normal. Serum bilirubin rose immediately but then decreased and in 3 weeks was almost normal. SGPT showed a similar early marked rise but afterwards fell more quickly towards, but not quite to, normal. The serum gamma-glutamyl-transpeptidase and the alkaline phosphatase values, increased preoperatively, fell immediately and then gradually increased. The thymol turbidity reading, initially normal, began to increase 10 days after the operation. Serum haptoglobin fell slightly on the first day, and then rose to remain at the upper range of normal. Serum cholesterol fell after operation, began to rise on the 10th day, and reached normal by day 20. Total serum protein fell and then began to rise on day 3 and reached its original value after 2 weeks. Serum albumin was consistently slightly subnormal. The $\alpha_1$-globulin, preoperatively increased, returned to normal on the first day, gradually increased to reach preoperative levels in 2 weeks, and then fell to normal. The $\alpha_2$-globulin, preoperatively increased, fell on the first day, then gradually rose, and, after 3 weeks, was in the upper limit of normal. The $\beta_1$ and $\beta_2$-globulins fluctuated in a similar way, but the $\beta_1$-globulin, subnormal before surgery, after 3 weeks had scarcely reached the original level. The $\beta_2$-globulin, increased before surgery, was further increased after 3 weeks. The $\alpha$-globulin, slightly increased before, fell considerably, and from the 10th day it rose to reach values well above normal. Two patients with extended right-sided lobectomy were also compared. The severity of the postoperative metabolic changes was found to be inversely proportional to the size of the lesion.

### 8623 GLUTAMIC OXALOACETIC AND GLUTAMIC PYRUVIC TRANSAMINASE OF BILE IN DIFFERENT CONDITIONS OF EXPERIMENTAL HEPATIC PATHOLOGY.

*(E.)* de Ritis, F. (Clin. Infect. Dis., U. Naples, Italy), L. Cacciatore and G. Ruggiero. *Enzym Biol Clin (Basel)* 10(4):281-292, 1969.

GOT and GPT activities of the common duct bile and serum of mice with experimental MHV-3 viral hepatitis and of rats with acute $CCl_4$ intoxication were determined. GOT and GPT activities were determined by the optimum spectrophotometric methods of Bergmeyer and Bernt. The changes induced by the bile on the kinetics of the reactions catalyzed by GOT and GPT and on those catalyzed by the Malat and LDH indicator enzymes utilized for determining GOT and GPT were studied. GOT and GPT activities are present in normal mouse bile. Statistically significant increases of about 230% of GOT and about 75% of GPT were observed in the bile in the acute phase of MHV-3 viral infection. Such increases were by far lower than those observed in serum. GOT and GPT activities are also present in normal rat bile. In the acute phase of $CCl_4$ intoxication, no statistically significant variations in the 2 enzyme activities were observed in the bile.

### 8624 SURGICAL MANAGEMENT OF HEPATIC ABSCESS.

*(E.)* Gaisford, W. D. (Stanford U. Sch. Med., Palo Alto, Calif.) and J. B. D. Mark. *Amer J Surg* 118(2):317-326, 1969.

Fifty-five patients (aged 1½-85 yr, average, 46 yr; male: female ratio, 3:1) were treated 1940-1968 for hepatic abscess. Of the 27 since 1950, 13 were proved or suspected amebic and 14 were pyogenic abscesses; 21 were single, 5 were multiple, and 1 was multilocular. The symptoms and signs are usually nonspecific and in the early stages may be misleading. All patients had fever with varied patterns, but jaundice was rare. Three of 21 patients with solitary hepatic abscess had diabetes and none of the 5 with multiple abscesses had diabetes. Recognition of hepatic abscess even at the time of celiotomy can be difficult, and the single most valuable diagnostic aid was the hepatic photoscan, using colloidal $^{198}$Au. The very high mortality of 90% in the 28 patients with hepatic abscess before 1950 was due primarily to failure of recognition, with resulting inadequate drainage and elimination of the sources of infection. The over-all mortality in 27 patients treated since 1950 was 30% with no deaths in 17 patients treated with either open surgical drainage or closed aspiration. Proper use of antibiotics and antiamebic agents requires accurate identification of the causative organism.

### 8625 RUPTURE OF THE LIVER FOLLOWING BLUNT INJURIES TO THE ABDOMEN.

*(Pol.)* Banaszkiewicz, Z. (L. Rydygiera Hosp., Czestochowa, Poland). *Pol Przegl Chir* 41(3):248-252, 1969.

During the period from 1953 to 1967 25 patients were seen with rupture of the liver following blunt injuries to the abdomen. The youngest patient was 5 yr old and the oldest 66. The average age was 30. Four of the patients with slight injuries to the liver and parenchyma were sutured and recovered in a short time. Thirteen patients with more severe injuries were also sutured and 11 of these were treated with gauze setons and 2 with rubber drains. Complications developed in these patients in the form of leakage of a colored serous bile fluid: the leakage lasted for 6 weeks in 3 and for 3 weeks in the other 10. In 8 patients the musculus rectus abdominis together with the omentum was implanted into the liver and the implant reinforced with sutures and secured with gauze setons and rubber drains. This procedure was performed on patients with deep liver wounds which were not readily accessible. In 5 patients there was biliary leakage which lasted about 20 days and in 1 case 5 weeks. Four patients died postoperatively: a surgical mortality rate of 16%.

### 8626 CLINICAL TRIAL OF A DRUG FOR HEPATOBILIARY DISEASES.

*(Fr.)* Etaix, J. P. (St. Etienne, France). *J Med Lyon* 50(1158):223-226, 1969.

A combination of divanillalcyclohexanone 150 mg (choleretic), sorbitol 500 mg (cholecystokinetic) and inositol was administered to 31 patients, 25 patients with hepato-biliary diseases (6 with biliary lithiasis; 5 with dyskinesia without lithiasis; 14 without radiological anomalies of the biliary ducts); 5 patients with liver disease of cellular origin (hepatic steatosis and cirrhosis); and 1 patient with pancreatic lithiasis. In 25 patients an improvement in the subjective symptoms (19 good, 6 medium) was observed. The drug was well tolerated by all.

### 8627 ASYMPTOMATIC HEPATITIS IN ADULTS GIVEN $\gamma$-GLOBULIN FOR PROPHYLAXIS.

*(E.)* Keusch, G. T. (New England Med. Ctr. Hosp., Boston, Mass.), R. A. Olsson and F. J. Troncale. *Arch Intern Med*

*(Chicago)* 124(3):326-329, 1969.

U. S. Army engineers (478) serving under peacetime field conditions received a prophylactic dose i.m. of 0.05 ml/pound body weight gamma-globulin just prior to arrival in a hepatitis-endemic area of Thailand and 5 months later. Histologically confirmed, clinically asymptomatic viral hepatitis was found by serial surveillance of SGPT levels in 4, an incidence of 15.4 cases/1,000 man-years at risk in this environment. Biopsy in 21 other subjects with an SGPT level of 50 or more U revealed nonspecific alterations in 8, fatty metamorphosis in 8, and normal liver in 5. Of the total of 25 subjects with biopsies, 80% had histologically abnormal findings. Those with biopsy-confirmed hepatitis had SGPT elevations for at least 4 weeks with a peak level of 500 or more U. Correlation between histologic findings and magnitude and duration of SGPT abnormality was good. Clustering of instances of hepatitis in and 4th and 5th months of the study may be related to establishment of close contacts with the local environment at this time. Patients with asymptomatic and undiagnosed anicteric hepatitis constitute a serious potential public health problem for both residents and visitors.

8628 **CONSTITUTIONAL NON-HEMOLYTIC HYPERBILIRUBINEMIA AND TRANSHEPATOCYTIC PASSAGE OF BILIRUBIN. CRITICAL AND EXPERIMENTAL CONTRIBUTION TO THE ULTRASTRUCTURAL STUDY OF THE LIVER.** *(Fr.)* Gautier, A. (Inst. Pathol. Anat., U. Lausanne, Switzerland), L. Okolicsanyi and D. Gardiol. *Gaz Sanit* 40(3):81-105, 1969.

Liver biopsies (22) from 20 patients with constitutional nonhemolytic hyperbilirubinemia of varied types were studied by electron microscopy. The occasional changes observed at the vascular pole of hepatocytes including reduced number of microvilli and altered endothelium were not specific. Fibrillar inclusions in hepatocytic mitochondria were a prominent feature in only a few cases; an hypertrophic endoplasmic reticulum or widened interhepatocytic spaces were not commonly observed. The characteristic pigment granules found in the 3 types of adult hyperbilirubinemia are probably of lysosomial origin and are morphologically interrelated. Hepatocytic lamellar inclusions of autophagic vacuoles, frequently observed in Dubin-Johnson's syndrome, may be connected with an altered excretion of conjugated bilirubin. An ultrastructural study of the liver in homozygous Gunn rats or normal Wistar rats injected with conjugated or nonconjugated bilirubin showed that the appearance of myelin figures in hepatocytes and particularly in perihepatocytic spaces depends only on the preparation technique and that within 20 min after injection no change in hepatocytic structure is induced by a load of bilirubin of either type.

8629 **ESTABLISHMENT OF NEW ASCITES HEPATOMAS.** *(E.)* Kimoto, K. (Okayama U. Med. Sch., Japan). *Acta Med Okayama* 23(1):27-46, 1969.

Hepatomas in Donryu rats induced by feeding 4-dimethylaminoazobenzene (DAB) for more than 191 days were transplanted into the brain of newborn rats of the same strain and the formed tumors were then transplanted into the peritoneal cavity of adult rats of the same strain. This produced 4 lines of transplantable ascites hepatomas. The cells of these 4 hepatomas resembled cells of the original liver tumor but showed less differentiated or more malignant characteristics than those taken from the tumor at the more advanced stages of DAB feeding. Liver tissues from rats fed DAB for 191 days had no tumor inducing activity when they were inoculated into the brains of newborn C 74 rats. The liver tumors of the rats fed for more than 236 days produced brain tumors which were serially transplantable (C 82) and kept the original morphologic pattern. Tumor cells of the C 82 line showed the least malignancy among the 4 lines of ascites hepatomas established. Those of the C 83 line from the rats fed DAB for 264 days demonstrated the type of well-differentiated liver cell carcinoma with the trabecular arrangement of tumor cells, but in the ascites form they grew more rapidly than those of C 82. Those having the most malignant characteristics were the C 84-A cells from the rat fed DAB for 312 days and were of the type of undifferentiated liver cell carcinoma. The island forming capacity of the C 84-A cells was the weakest among the 4 lines. C 84-B cells derived from the same rat showed poorly differentiated liver cell carcinoma, but were less malignant than those of C 84-A.

8630 **DEFICIENCY OF HEPATIC ORGANIC ANION-BINDING PROTEIN AS A POSSIBLE CAUSE OF NON-HAEMOLYTIC UNCONJUGATED HYPERBILIRUBINAEMIA IN THE NEWBORN.** *(E.)* Levi, A. J. (Albert Einstein Coll. Med., New York, N. Y.), Z. Gatmaitan and I. M. Arias. *Lancet* 2(7612):139-140, 1969.

The development of 2 hepatic cytoplasmic proteins, Y and Z, that function as intracellular acceptors for bilirubin, BSP and other organic anions was studied in livers from Hartley guinea pigs. In 71 experiments, animals weighted 80 g at birth, 120 g after one week and 180 g after 2 weeks. Z was low in the early fetus, increased before birth (mean body weight 72 g), and did not greatly change thereafter. Y was low in the early and late fetus, increased slowly after birth and reached 75% of adult levels in animals weighing 225-285 g. Neonatal nonhemolytic unconjugated hyperbilirubinemia may result from relative deficiency of Y protein rather than, or in addition to, immaturity of uridine diphosphoglucuronyl transferase.

8631 **HEPATITIS IN INFECTIOUS MONONUCLEOSIS.** *(E.)* Kitzmiller, G. (Hennepin County Gen. Hosp., Minneapolis, Minn.). *Minn Med* 52(5):721-724, 1969.

Of 75 cases of infectious mononucleosis (74 males, 1 female), 76% had a sore throat, 67% malaise, 44% an exudative pharyngitis, 82% posterior cervical lymphadenophathy, 48% splenomegaly, and 70% an oral temperature of more than 100 F. More than 50% mononuclear forms were found in the peripheral blood of 94% and 94% had heterophile titers of more than 1:28 after guinea pig kidney absorption. Alkaline phosphatase, SGOT and total bilirubin determinations were made at weekly intervals using a 12-channel Technicon Auto-Analyzer. The studies showed that 83% had evidence of hepatitis. The degree of involvement appeared to correlate with the severity of the clinical illness. The hepatitis appeared to be benign and resolved within 1 month after onset in most cases. No cases of chronic hepatitis developed. SGOT was the most sensitive indicator of hepatitis.

## LIVER AND BILIARY TRACT

8632 **A SCREENING METHOD FOR LIVER GLYCOGEN DISEASES.** *(E.)* Fernandes, J. (Child. Hosp., U. Utrecht, Netherlands), F. Huijing and J. H. van de Kamer. *Arch Dis Child* 44(235):311-317, 1969.

Blood lactate levels were followed during oral hexose tolerance tests in 18 patients with different types of liver glycogenosis; 5 patients with glucose-6-phosphatase deficiency were given a glucose tolerance test, 5 patients with a deficiency of the debranching enzyme system, and 8 patients with a deficiency of the phosphorylase system were given glucose, fructose, and galactose tolerance tests. All patients were also given a glucagon tolerance test, with estimation of blood glucose levels. A screening procedure for the 3 commonest types of liver glycogen disease has been developed using these tests.

8633 **MOLECULAR SPECIES OF ALDOLASE IN THE LIVER OF TUMOR-BEARING RATS.** *(E.)* Suzuki, N. (Natl. Cancer Ctr. Res. Inst., Tokyo, Japan), S. Kawabe, T. Matsushima and T. Sugimura. *Gann* 60(4):433-437, 1969.

Rhodamine sarcoma was transplanted s.c. in the back of Wistar strain rats – group 1 weighing around 160 g, and group 2 around 100 g. Enzyme activities and electrophoretic patterns were checked every 5-7 days, with at least 4 tumor-bearing and 1 control animal at each point. In group 2 the quantitiy of transplanted tumor tissue was twice that in group 1. In group 1, at 30 days, the tumor weight was 16.9% of carcass weight; in group 2, at 21 days – 31.8%. Aldolase activity toward fructose 1,6-diphosphate or fructose 1-phosphate decreased with tumor growth. Fructose 1,6-diphosphate/fructose 1-phosphate aldolase activity ratios and electrophoretic patterns of aldolase in the liver of tumor-bearing animals did not show any deviation from those of the controls. The molecular species of aldolase in the liver of tumor-bearing animals did not alter in spite of the marked growth of tumor to 20-30% of the carcass weight. The liver of tumor-bearing rats was producing mostly liver-type aldolase, aldolase B, which is not the key enzyme in the glycolytic pathway and is not related to the regulatory mechanism of glycolysis and gluconeogenesis, but is related to the regulatory mechanism of fructose metabolism.

8634 **CHANGES OF HEPATIC TISSUE IN ACUTE CHOLECYSTITIS.** *(Cz.)* Šíma, V. (Oúnz Surg. Clin., Karlovy Vary, Czechoslovakia) and V. Král. *Cesk Gastroent Vyz* 23(1):1-14, 1969.

Acute cholecystitis in 28 patients was studied. The interval between the start of symptoms and operation was 2-9 days (average 4 days). After laparotomy a liver biopsy specimen was excised and a biochemical evaluation was undertaken. The bilirubin was raised in 12 patients, SGPT in 14, LDH in 10, "PHI" in 15, and blood sugar in 9. Histologically the bile duct showed acute proliferative inflammation of its wall, necrotic islands in the mucosa and a submucous infiltration with the formation of abscesses. Nonglycogen positive substances and minute changes in the liver biopsy specimens in 10 cases showed pathological changes of a significant degree resulting from the original disease (acute cholecystitis). In an experimental study of 36 guinea pigs acute cholecystitis was induced and changes in the liver parenchyma were analyzed. In comparing the microscopic findings in the clinical and experimental group, human biopsies show a great variety of changes. Their majority can either be judged as normal or independent of the acute cholecystitis. Perhaps the only real pathological value are the diffuse inflammatory changes. Beside the simple microscopic findings of the clinical group, marked changes were noticed when studying the nonglycogenous "PAS" positive substances. The liver biopsies of the experimental group lack this variety. In those cases which most closely resemble human acute cholecystitis, changes were more marked and specific and were not present in the control group. The results show that acute cholecystitis causes a disturbance of liver function and morphology which may frequently be discrete. The findings support the need for radical treatment of this abdominal inflammatory disease.

8635 **AN OBSERVATION OF CALCIFIED PORTO-PHLEBITIS.** *(Fr.)* Caroli, J. (St. Antoine Hosp., Montpellier, France). *Rev Medicochir Mal Foie* 43(4):145-152, 1968.

A woman (71 yr old) presented symptoms of pain at the right hypochondrium and jaundice at the age of 61. Radiological and laparoscopic examinations revealed calcification at the hepatic hilus. The angiocholitic symptomatology continued for several yr and only the use of biligraphic-morphine tomography allowed the diagnosis of calcified porto-phlebitis with portal hypertension, compression of biliary ducts and splenomegaly. Surgical treatment was avoided for 6 yr, but after hepatic coma a perfusion, using pig liver, was carried out. After the disappearance of the comatous status, a surgical operation was attempted. Intrahepatic cholangiography showed pronounced dilation of the biliary ducts and the presence of a great number of stones. Due to profuse hemorrhages, it was technically impossible to remove calcifications and stones. The patient died 2 months later, of postoperative complications.

8636 **HEPATIC TRAUMA: A REVIEW OF 130 CONSECUTIVE CASES.** *(E.)* Lanier, V. C. (Vanderbilt U. Sch. Med., Nashville, Tenn.), J. L. Sawyers and J. H. Foster. *Southern Med J* 62(7):834-838, 1969.

A 15 yr review of 130 consecutive cases (95 males, 35 females, average age 21 yr) of hepatic trauma is presented. Sixty seven (52%) were due to penetrating wounds, 63 (48%) were due to blunt trauma. The patients were seen on an average of 30 min after their injury. Forty-six (41%) were presented in shock. Fifteen (32%) of these died. Twenty-seven (20%) of the patients demonstrated hematoma. In 14 of the 67 penetrating injuries the site of entrance was a chest wound. Liver surgery included superficial lacerations in 34 (16%), deep laceration or stellate fracture in 73 (56%) and bursting injury in 18 (14%). There were 4 hematomas and one hepatic cyst found 2 yr after trauma. Forty-five (19%) of the 130 patients required thoraco-abdominal incision. In 17 patients (13%) the liver injury was treated with major hepatic resection. Associated injuries included the gallbladder (11), kidneys (18), thorax (29), bowel (26), spleen (22) and skeletal structure (28). Seventy-four patients (57%) had 86 significant postoperative complications. Forty-five of these were pulmonary. Twenty-three (37%) of the 63 patients with blunt injury died, while only 5 (7%) of the 67 penetrating injuries were lethal. Only 3 of the 49 patients with an isolated liver injury died.

## LIVER AND BILIARY TRACT

8637 **THE INFLUENCE OF GENETIC AND ACQUIRED LIVER DEFECTS ON RADIOCOPPER TURNOVER IN WILSON'S DISEASE.** *(E.)* Osborn, S. B. (King's Coll. Hosp., London, England) and J. M. Walshe. *Lancet* 2(7610):17-20, 1969.

Studies with radiocopper were made in 25 patients with untreated Wilson's disease in the presymptomatic (6), hepatic (6), and neurological (13) stages; these were compared with similar studies made in 18 patients with chronic liver disease. Control observations were on 14 individuals heterozygous for Wilson's disease and 18 normals. Estimation of the ratio of radioactivity in the plasma at 24 hr compared with that at 2 hr will separate the patients with Wilson's disease from patients with liver disease and from the control groups. Uptake of radiocopper by the liver was only rarely severely depressed in patients with chronic liver damage but was always very severely depressed in patients with untreated neurological Wilson's disease. No correlation was shown between the degree of liver damage measured either histologically or biochemically and the reduced uptake of radiocopper by the liver in patients with untreated Wilson's disease.

8638 **THE VALUES OF REPEATED DETERMINATIONS OF SERUM ALKALINE PHOSPHATASE IN THE DIAGNOSIS OF PRIMARY LIVER TUMORS.** *(It.)* Albertini-Petroni, V. (S. Giacomo Hosp., Rome, Italy) and A. Beni. *Epatalogia* 14(5):431-440, 1969.

In 38 cases of primary liver carcinoma, confirmed by biopsies, laparoscopies, or autopsies, a significant increase in serum alkaline phosphatase was observed in 27 (71%), with an average value of 59.6 (King Armstrong Units) UKA. In all the subjects an increase above initial values was observed in repeated determinations. In 14 cases (38%) the increase was associated with an increase in serum bilirubin, while in 24 (63%) it was not associated with an increase in jaundice. Among 11 patients with cancer cirrhosis, 10 showed a consistent increase in serum alkaline phosphatase. In 2 cases the values reached 348 UKA and 98 UKA; both these patients had osseous metastases. Alkaline phosphatase determinations, repeated over a period of time,may be useful in the early diagnosis of primary liver carcinoma.

8639 **MUSCLE-TYPE ALDOLASE ISOLATED FROM A LIVER TUMOR.** *(E.)* Brox, L. W. (Albert Einstein Coll. Med., Bronx, N. Y.), A. G. Lacko, R. W. Gracy, R. C. Adelman and B. L. Horecker. *Biochem Biophys Res Commun* 36(6):994-998, 1969.

Fructose diphosphate aldolase was crystallized from a Novikoff ascites hepatoma and its properties compared with those of aldolases of normal rat liver and muscle. The identity of the tumor enzyme with the normal muscle enzyme was established on the basis of amino acid composition and tryptic fingerprints, as well as the sensitivity to inactivation by L-glyceraldehyde 3-phosphate. The normal liver enzyme remains unaffected by the latter treatment.

8640 **SERUM ALPHA-FETO-PROTEIN II. CORRELATION OF SERUM LEVELS WITH OTHER BIOCHEMICAL PARAMETERS IN PRIMARY CANCERS OF THE LIVER.** *(E.)* Purves, L. R. (South African Inst. Med. Res., Johannesburg) and I. Bersohn. *S Afr Med J* 43(36): 1110-1113, 1969.

Serum alpha-feto-protein levels in primary liver cancer were correlated with other biochemical parameters. None of the studies showed a highly significant ($P > 0.01$) degree of correlation with positive alpha-feto protein results. As the level of alpha-feto-protein increased there was a tendency for mucoprotein, C-reaction protein, erythrocyte sedimentation rates and the percent of $\alpha_2$-globulin to fall and cholesterol, hemoglobin, and total serum protein to rise.

8641 **A CLINICAL, BIOCHEMICAL AND HISTOLOGICAL STUDY OF THE PROGRESSIVE FORMS OF ACUTE HEPATITIS. 53 CASES.** *(It.)* Dal Monte, P. R. (Inst. Semiotic Med., U. Bologna, Italy), E. Fiore, R. Cremonini and M. Montroni. *G Clin Med* 50(3):185-221, 1969.

The clinical, biochemical and liver biopsy data on 53 patients with progressive forms of acute hepatitis are summarized. These were classified as 11 cases of persistent hepatitis, 31 cases of chronic active hepatitis and 11 cases of inactive hepatitis. The results of clinical (hepatomegaly, splenomegaly) findings and of laboratory tests (SGPT, SGOT, BSP, alkaline phosphatase, bilirubin, etc.) are given in tabular form for each of the patients in these 3 categories. Satisfactory diagnostic criteria are thus developed but the standards should not be applied too rigidly: the types merge imperceptibly into one another. Therapy, including immunosuppressive drugs, is discussed.

8642 **EARLY EFFECTS OF FEEDING EXCESS VITAMIN A: MECHANISM OF FATTY LIVER PRODUCTION IN RATS.** *(E.)* Singh, V. N. (Vallabhbhai Patel Chest Inst., U. Delhi, India), M. Singh and T. A. Venkitasubramanian. *J Lipid Res* 10(4):395-401, 1969.

Administration of vitamin A (30,000 IU/day for 2 days p.o.) to young rats caused a marked increase in hepatic glycogen, cholesterol, and glycerides, while hepatic phospholipid content remained almost unaltered. The pathogenesis of the lipid accumulation was examined using radioactive tracers. It was found that more $^{14}$C-glucose was incorporated into liver lipids in vitamin A-fed rats, but incorporation of $^{14}$C-glucose and DL-$^{14}$C-glycine into liver protein was unaltered. The increase in $^{14}$C-glucose incorporation was confined to the glyceride-glycerol portion of the lipids; incorporation into liver fatty acids was inhibited. Plasma free fatty acid concentrations were elevated. In the vitamin A-fed rats, increased accumulation of lipids in the liver may be caused by a stimulation of fatty acid mobilization from adipose tissue and enhanced formation of glycerophosphate through glycolysis, with consequent increase in the glyceride synthesis in the liver. After administration of vitamin A to rats the weight of the adrenals was increased, but cholesterol concentration in the gland was decreased. This indicates adrenocortical stimulation. Vitamin A feeding did not affect either the level of liver lipids or of plasma in adrenalectomized rats.

8643 **RELATION OF SERUM LIPIDS AND LIPOPROTEINS TO FATTY LIVER IN KWASHIORKOR.** *(E.)* Truswell, A. S. (U. Cape Town, South Africa), J. D. L. Hansen, C. E. Watson and P.

Wannenburg. *Amer J Clin Nutr* 22(5):568-576, 1969.

In 19 children with kwashiorkor, before and during treatment with high-protein and very low-fat diets, measurements were made of serum lipoproteins (by paper electrophoresis), phospholipid fractions (by thin-layer chromatography), and total cholesterol, triglyceride, and phospholipid. The group with more severe fatty liver (by needle biopsy) had lower mean initial serum beta-lipoprotein cholesterol, triglycerides, and albumin, but alpha-lipoprotein and phosphatidyl choline were not reduced. During dietary treatment, serum lipids rose above normal levels, triglyceride before cholesterol, and pre-beta-lipoprotein appeared. The reduced synthesis of low density lipoproteins may be a major cause of the fatty liver in kwashiorkor. No evidence was found to implicate lipotropic factor deficiency.

8644 THE LIVER AND ACUTE DISEASE. *(E.)* Maegraith, B. (Liverpool Sch. Trop. Med., England). *J Roy Coll Surg Edinb* 12(5):308-313, 1968.

8645 COMBINED HEPATIC AND RENAL FAILURE TREATED BY EXCHANGE TRANSFUSION AND DIALYSIS. [CASE REPORT] *(E.)* O'Sullivan, D. C. (Bon Secour Hosp., Cork, Ireland). *J Irish Med Ass* 61(377): 395-397, 1968.

8646 LESIONS IN THE LIVER AS A RESULT OF DISTOMATOSIS CAUSED BY *FASCIOLA HEPATICA*. *(Fr.)* Paris, J. and J. C. Paris. *Lille Med* 13(5): 559-562, 1968.

8647 SOME PROBLEMS OF ANESTHESIOLOGICAL SAFETY IN THE SURGICAL TREATMENT OF PORTAL HYPERTENSION. *(Rus.)* Sidorenko, V. I. (S. M. Kirov Milit. Med. Acad., Leningrad, USSR). *Klin Khir (Kiev)* (6):46-50, 1968.

8648 THE MANAGEMENT OF OBSTRUCTIVE JAUNDICE. *(E.)* Kune, G. A. (Royal Melbourne Hosp., Australia). *Med J Aust* 1(8):320-321, 1968.

8649 SERUM INHIBITORS OF STREPTOLYSINE O IN PRIMARY CANCER OF THE LIVER. *(Fr.)* Baylet, R. (Fac. Med. Dakar, Senegal) and J. Yven. *Bull Soc Med Afr Noire Lang Franc* 13(3):553-554, 1968.

8650 HYDATID CYSTS OF THE LIVER. *(Fr.)* Gallot, D. *Tunisie Med* 46(3):295-305, 1968.

8651 EEG EVOLUTION IN A CASE OF HEPATIC COMA COMPLICATED BY ACUTE HEPATITIS AND SUCCESSFULLY TREATED BY REPEATED EXCHANGE TRANSFUSIONS. *(E.)* Dureux, J. B. (Nancy, France), F. Streiff, B. Genetet, P. Canton, F. Jeandin, M. Weber and G. Grun. *Electroenceph Clin Neurophysiol* 25(1): 93, 1968.

8652 LIVER DISEASE IN THE HIGHLAND POPULATIONS OF THE TERRITORY OF PAPUA AND NEW GUINEA. I. OBSERVATIONS ON LIVER BIOPSIES FROM PERSONS SELECTED IN FIELD SURVEYS. *(E.)* Arter, W. J. (Dept. Med., U. Sydney, Australia), G. M. Stathers, M. H. Ma, C. R. B. Blackburn and V. J. McGovern. *Trop Geogr Med* 20(3):202-216, 1968.

8653 EVALUATION OF CURRENT BILIARY PROBLEMS. "MISTAKEN" LAPAROTOMY FOR JAUNDICE. *(E.)* Bourke, J. B. (The London Hosp., England) and H. D. Ritchie. *J Roy Coll Surg Edinb* 12(5):315-316, 1968.

8654 TRANSUMBILICAL PORTO-HEPATOGRAPHY. *(Rus.)* Ostroverkhov, G. Ie. (N. I. Pirogov 2nd Moscow Med. Inst., USSR), A. D. Nikol'skii and V. G. Akopian. *Klin Khir (Kiev)* (2):6-8, 1968.

8655 A SPLENOHEPATOMEGALIC SYNDROME IN THE COURSE OF AFEBRILLE ISOLATED TUBERCULOSIS OF THE SPLEEN. [CASE REPORT] *(Pol.)* Chmielewski, T. (Munic. Hosp., Tomaszow-Mazowiecki, Poland), A. Lemańczyk and M. Nowak. *Wiad Lek* 21(3):208-212, 1968.

8656 PATTERNS OF HETEROHEMAGGLUTINATION IN NON-VIRAL JAUNDICE. *(Pol.)* Bergiel, A. (Clin. Infect. Dis., Lodz, Poland). *Wiad Lek* 21(5):339-343, 1968.

8657 SURGICAL TREATMENT OF PORTAL CIRCULATION DISORDERS IN CASES OF INTRAHEPATIC OBSTRUCTION. *(Rus.)* Shalimov, A. A. (Ukrainian Inst. Postgrad. Med., Kharkov, USSR) and V. A. Shus. *Klin Khir (Kiev)* (9):16-22, 1967.

8658 CLINICAL EVALUATION OF METHODS OF DETERMINING PORTAL HYPERTENSION AND DEGREES OF ITS COMPENSATION. *(Rus.)* Usov, D. V. (Altai Med. Inst., USSR). *Klin Khir (Kiev)* (9):23-27, 1967.

8659 REPORT ON THE RESULTS OF ISOTOPIC SPLENOPORTOGRAPHY. [CASE REPORT] *(Fr.)* Lenti, G. (Inst. Clin. Med. U. Cagliari, Italy), A. Pellegrini, G. Pagano, E. Massacci and M. V. Brotzu. *Schweiz Med Wschr* 97(34):1117-1122, 1967.

8660 A CASE OF ECHINOCOCCUS OF THE LIVER WITH LOCALIZATION ESTABLISHED BY INTRAOPERATIVE CHOLANGIOGRAPHY. *(Pol.)* Dawiskiba, E. (1st Surg. Clin., Acad. Med., Wroclaw, Poland) and L. Mikulska. *Wiad Lek* 20(15):1487-1489, 1967.

8661 FEBRILE JAUNDICE. *(Ser.)* Košutić, Z. (Hosp. Infect. Dis., Zagreb, Yugoslavia), and K. Babić. *Lijecn Vjesn* 89(7):549-563, 1967.

8662 THE USE OF BIOLOGY IN HEPATO-BILIARY DISEASES. *(Fr.)* Albot, G. (Med. Coll. Paris Hosp., France) and J. Lunel. *Laval Med* 38(8):750-776, 1967.

8663 ETIOPATHOGENIC AND HISTOPATHOLOGIC STUDY OF THE CHRONIC HEPATOPATHIES IN DIABETES MELLITUS. *(Fr.)* Mincou, J. (Dr. I.

Cantacuzino Hosp., Bucharest, Rumania), S. Cimpeanu, G. Radulesco, L. Cimpeanu and A. Petrovici. *Rev Int Hepat* 18(8):987-1022, 1968.

8664 **COMMENTS ON AN EPIDEMIC OF HUMAN HEPATIC DISTOMATOSIS. STUDY OF 50 RECORDS IN HOSPITAL SURROUNDINGS.** *(Fr.)* Giraudet, J. (Cholet Hosp., France). *Presse Med* 76(5):189-192, 1968.

8665 **AUTORADIOGRAPHIC STUDY OF PLASMA IRON TRANSPORT IN HEMOCHROMATOSIS AND IN OTHER DISEASES.** *(It.)* Scuro, L. A. (Inst. Spec. Med. Pathol., U. Padua, Italy), G. Dobrilla, O. Bosello, C. Scandellari, V. Lo Cascio, A. Innecco and I. Vantini. *Acta Isotop (Padova)* 8(1):81-98, 1968.

8666 **MAJOR HEPATIC RESECTION.** *(E.)* Marks, C. (U. Sch. Med., Cleveland, Ohio). *Ohio Med J* 64(7):789-793, 1968.

8667 **A CASE OF SECONDARY HEMOCHROMATOSIS AFTER PORTACAVAL ANASTOMOSIS.** *(Fr.)* Gardiol, D. (Med. Clin. U. Lausanne, Switzerland), F. Corbat and P. Magnenat. *Schweiz Med Wschr* 97(45):1494-1498, 1967.

8668 **ULTRASTRUCTURAL ASPECTS OF ANICTERIC HEPATITIS AND CONSIDERATIONS OF PATHOGENESIS OF JAUNDICE IN HEPATITIS. [CASE REPORT]** *(Fr.)* Teodori, U. (Inst. Pathol. Med., U. Florence, Italy) and P. Gentilini. *Schweiz Med Wschr* 97(33):1106-1110, 1967.

8669 **FUNCTIONAL ORIGIN OF CERTAIN FORMS OF CHRONIC ICTERUS. [CASE REPORT]** *(Fr.)* Pavel, I. (Cantacuzino Hosp., Bucarest, Romania), R. Pieptea, A. Percek and D. Ulmeanu. *Sem Hop (Paris)* 43(54):3516-3520, 1967.

8670 **CHRONIC IDIOPATHIC JAUNDICE. ULTRASTRUCTURE AND PATHOGENESIS.** *(Fr.)* Magnenat, P. (Med. Clin. U. Lausanne, Switzerland) and F. M. Paluello. *Schweiz Med Wschr* 97(34):1102-1105, 1967.

8671 **PERCUTANEOUS TRANSHEPATIC CHOLANGIOGRAPHY.** *(E.)* McClure, J. N. Jr. (Grady Mem. Hosp., Atlanta, Ga.) and J. D. Martin, Jr. *J Med Ass Georgia* 56(12):495-499, 1967.

8672 **CHRONIC IDIOPATHIC HYPERBILIRUBINEMIA WITH PIGMENT DEPOSITION IN THE LIVER.** *(E.)* Knoke, M. (Med. Clin. Polyclin., U. Greifswald, Germany), H. Gurtler and J. Markert. *German Med Monthly* 12(10):479-484, 1967.

8673 **EXPERIENCE WITH THE DIURETIC EVALUATION IN THE DIAGNOSIS OF LIVER DISEASES.** *(Cz.)* Černý, Z. (Med. Fac., Purkyne U., Brno, Czechoslovakia). *Cas Lek Cesk* 106(52):1416-1419, 1967.

8674 **THE EFFECT OF SURGERY-REQUIRING DISEASES ON THE LIVER FUNCTION INDICATORS IN PATIENTS WITH DIABETES MELLITUS.** *(Rus.)* Lesnichii, A. V. *Klin Khir (Kiev)* (9):86, 1967.

8675 **ABNORMAL HAPTENES IN MICE LIVER IN EARLY STAGES OF CARCINOGENESIS UNDER THE INFLUENCE OF β-NAPHTHYL-AMINE.** *(Rus.)* Skachkov, A. P. (N. N. Petrov Res. Inst. Oncol., Leningrad, USSR). *Vop Onkol* 14(3):12-16, 1968.

8676 **LIVER SCINTIGRAPHY IN HODGKIN'S DISEASE.** *(It.)* Clementi, T. (Inst. Med. Radiol., U. Rome, Italy) and C. Spina. *Nunt Radiol* 23(9):1155-1167, 1967.

8677 **THREE CASES OF HEPATOCELLULAR CARCINOMA WITH UNUSUAL PRESENTATION.** *(E.)* Khoo, T. C. (Outram Road Gen. Hosp., Singapore) and E. Hanam. *Singapore Med J* 10(2):121-126, 1969.

8678 **PERITONEAL DIALYSIS IN THE REDUCTION OF BLOOD AMMONIA LEVELS IN A CASE OF HYPERAMMONAEMIA.** *(E.)* Herrin, J. T. (Dept. Pediat., U. Melbourne, Australia) and D. A. McCredie. *Arch Dis Child* 44(234):149-151, 1969.

8679 **EXCHANGE TRANSFUSION AND ALBUMIN INFUSION FOR SEVERE LEPTOSPIRAL JAUNDICE. [CASE REPORT]** *(E.)* Murphy, K. J. (Princess Alexandra Hosp., Woolloongabba, Australia). *Med J Aust* 1(25):1299-1300, 1969.

8680 **HYPERAMMONAEMIA: A DEFICIENCY OF LIVER ORNITHINE TRANSCARBAMYLASE. OCCURRENCE IN MOTHER AND CHILD.** *(E.)* Levin, B. (Queen Elizabeth Hosp. Child., London, England), J. M. Abraham, V. G. Oberholzer and E. A. Burgess. *Arch Dis Child* 44(234):152-161, 1969.

8681 **HYPERAMMONAEMIA. A VARIANT TYPE OF DEFICIENCY OF LIVER ORNITHINE TRANSCARBAMYLASE. [CASE REPORT]** *(E.)* Levin, B. (Queen Elizabeth Hosp. Child., London, England), R. H. Dobbs, E. A. Burgess and T. Palmer. *Arch Dis Child* 44(234):162-169, 1969.

8682 **PHENOBARBITONE AND DICOPHANE IN JAUNDICE.** *(E.)* Anonymous. *Lancet* 2(7612):144-145, 1969.

8683 **THE MANAGEMENT OF ACUTE HEPATOCELLULAR FAILURE.** *(E.)* Sherlock, S. (Royal Free Hosp., London, England). *Brit J Hosp Med* 2(7):1257-1268, 1969.

8684 **ACCESSORY LIVER LOBE ATTACHED TO THE GALL-BLADDER. [CASE REPORT]** *(E.)* Ashby, E. C. (Westminster Hosp., London, England). *Brit J Surg* 56(4):311-312, 1969.

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8685 MODES OF ACTION OF THREE BACTERIOSTATIC AGENTS IN THEIR INHIBITORY EFFECT ON INDUCTION OF HEPATOMA IN RATS FED 4-(DIMETHYLAMINO)-AZOBENZENE. I. EFFECT ON METABOLIC FATE OF 4-(DIMETHYLAMINO) AZOBENZENE. *(E.)* Miyaki, K. (Inst. Food Microbiol., Chiba U., Japan), M. Akao, K. Terao and K. Kuroda. *Gann* 60(2): 167-179, 1969.

8686 CHANGES OF THE CONTENT OF ELECTROLYTES IN THE PLASMA, ERYTHROCYTES AND URINE IN PATIENTS WITH DISEASES OF THE LIVER AND BILE DUCTS. *(Rus.)* Tagibekov, K. G. (Odessa Med. Inst., USSR) and V. L. Zimovskii. *Vrach Delo* 50(5):43-45, 1969.

8687 INDUCTION OF LIVER TUMOR IN MICE INJECTED AT BIRTH WITH LIVER TUMOR EXTRACT. *(E.)* Imaizumi, T. (Cancer Inst., Tokyo, Japan). *Gann* 60(1):119-120, 1969.

8688 THE TREATMENT OF CHRONIC LIVER DISEASES WITH HEPABIONTA. *(Ger.)* Gaumitz, E. (State Hosp., Traunstein, Germany). *Z Therapie* 7(4):203-208, 1969.

8689 DIAGNOSIS AND SURGICAL TREATMENT OF PORTAL HYPERTENSION. *(Rus.)* Uglov, F. G. (I. P. Pavlov 1st Leningrad Med. Inst., USSR). *Klin Khir (Kiev)* (12):26-31, 1967.

8690 BILE CONTAINING CALCIUM, A RARE VARIETY OF BILIARY LITHIASIS. [CASE REPORT] *(Fr.)* le Genissel, M. (Nice, France), P. Lecomte, Y. Benejam and J. P. Vedel. *J Radiol Electr* 48(12):837-840, 1967.

8691 SERUM IRON AS A DIFFERENTIAL DIAGNOSTIC TEST FOR JAUNDICE. *(It.)* Pistacchi, E. (Gen. Surg. Clin., U. Pavia, Italy). *Chirurgia* 22(1):47-52, 1967.

8692 PRIMARY BILIARY CIRRHOSIS. *(Fr.)* Sherlock, S. (Royal Free Hosp., London, England). *Rev Medicochir Mal Foie* 42(6):283-286, 1967.

8693 AUTO-IMMUNE LIVER DISEASES. GENERAL PRINCIPALS, PRACTICAL APPLICATIONS. *(Fr.)* Lods, J. C. (Paris, France), J. A. Paolaggi and C. Debray. *Rev Int Hepat* 17(6):576-581, 1967.

8694 SOME INDICATIONS OF THE FUNCTIONAL STATE OF THE LIVER IN BRONCHIAL ASTHMA IN CHILDREN. *(Rus.)* Iakushenko, M. N. (Moscow Sci. Res. Inst. Pediat. Child. Surg., Minist. Hlth., USSR). *Vop Okhr Materin Dets* 12(8):86-87, 1967.

8695 TREATMENT OF LUPOID HEPATITIS AND ITS PARAMETERS. *(Fr.)* Schalm, L. (Arnhem, Holland). *Rev Int Hepat* 17(6):583-588, 1967.

8696 CHOLESTEROL POLYCORIA IN ADULTS. [CASE REPORT] *(Fr.)* Lageron, A. (Saint-Antoine Hosp., Paris, France), R. Infante, P. Barbier, H. Stralin and J. Caroli. *Rev Int Hepat* 17(8):921-925, 1967.

8697 NONSPECIFIC IMMUNO-SERUM FACTORS IN CHRONIC HEPATITIS. *(Fr.)* Fodor, O. (Cluj, Romania) and N. Parau. *Rev Int Hepat* 17(6):589-604, 1967.

8698 STUDY OF ALKALINE PHOSPHATASE AND SERUM 5'NUCLEOTIDASE ACTIVITY. CLINICAL AND EXPERIMENTAL RESULTS. *(Fr.)* Housset, E. (Paris, France), J. P. Etienne, J. P. Petite. *Rev Int Hepat* 17(6):519-536, 1967.

8699 DISEASES OF THE LIVER AND THEIR SURGICAL INDICATIONS IN THE ELDERLY. *(It.)* Nocentini, P. (Inst. Gen. Clin. Surg., U. Florence, Italy). *Arch Atti Soc Ital Chir* 1(Part 2):859-910, 1967.

8700 PYOGENIC HEPATIC ABSCESS. *(E.)* Warren, K. W. (Lahey Clin. Found., Boston, Mass.) and K. J. Hardy. *Arch Surg (Chicago)* 97(1):40-45, 1968.

8701 PERCUTANEOUS TRANSHEPATIC CHOLANGIOGRAPHY AND CINECHOLANGIOGRAPHY. *(E.)* Myers, R. N. (Lankenau Hosp., Philadelphia, Pa.), J. M. Deaver, G. J. Haupt and N. C. Birkhead. *Arch Surg (Chicago)* 97(1):51-55, 1968.

8702 ECHINOCOCCUS OF THE LUNG AND LIVER IN CHILDREN. *(E.)* Bajec, D. (Inst. Child. Hlth. Serbia, Belgrade, Yugoslavia), I. Besevic, P. Radojkovic and D. Filipovic. *Z Kinderchir* 5(Suppl.):22-30, 1968.

8703 LIVER DISEASES IN MALNUTRITION. *(Sp.)* Ceballos Carrion, A. (Fac. Med. Sci. U. Guayaquil, Ecuador). *Rev Hosp Niños Alejandro Mann* 7(1/2):27-31, 1968.

8704 COLLATERAL CIRCULATION IN CHILDREN WITH PORTAL HYPERTENSION. *(Rus.)* Gavriushov, V. V. (Moscow Sci. Res. Inst. Pediat. Child. Surg., USSR) and V. A. Lavrov. *Vop Okhr Materin Dets* 13(1):61-65, 1968.

8705 RUPTURE OF ECHINOCOCCUS CYST OF THE LIVER INTO THE BILIARY DUCT. *(E.)* Viskos, D. J. (Gerulanion Hosp., Athens, Greece). *Int Surg* 49(1):92-94, 1968.

8706 THE PRURITUS OF JAUNDICE. *(E.)* Carey, J. B. Jr. (U. Minnesota Med. Sch., Minneapolis). *GP* 37(4):119-122, 1968.

8707 THE IRON-STORAGE DISEASES. *(E.)* Conrad, M. E. (Walter Reed Gen. Hosp., Washington, D. C.). *Med Ann D C* 37(1):15-19, 1968.

## LIVER AND BILIARY TRACT

8708 LIVER DISEASES. *(Jap.)* Ichida, F. and H. Sasaki. *Naika* 21(1):12-18, 1968.

8709 LONG-TERM DIETARY TREATMENT OF TYROSINOSIS. *(E.)* Aronsson, S. (U. Hosp., Lund, Sweden), G. Engleson, R. Jagenburg and B. Palmgren. *J Pediat* 72(5):620-627, 1968.

8710 REGRESSION OF SARCOID HEPATOSPLENOMEGALY ON CORTICOSTEROID THERAPY. *E.)* Gerard, A. G. (Perth Amboy Gen. Hosp., N. J.), A. L. Roth, S. M. Becker and C. S. Shih. *J Med Soc New Jersey* 55(2):64-67, 1968.

8711 ON THE HISTOGENESIS OF HEPATIC CARCINOMA. ACCORDING TO SPECIFIC FETAL PROTEINS. *(Fr.)* Lacassagne, A. (Radium Inst., Paris, France). *Bull Cancer* 55(2):181-204, 1968.

8712 THERAPEUTIC PERSPECTIVES IN SECONDARY CANCER OF THE LIVER. *(Fr.)* Pouyet, M. M. *J Med Lyon* 49(1155):2035-2042, 1968.

8713 ARTERIO-PORTAL FISTULAS. CLINICAL AND PHYSIOPATHOLOGICAL ASPECTS IN ONE CASE. *(Fr.)* Maillard, J. N. (Hosp. Beaujon, Clichy, France), J. P. Benhamou and B. Rueff. *Arch Franc Mal Appar Digestif* 57(12):1017-1032, 1968.

8714 RESULTS OF SURGICAL TREATMENT OF PULMONARY ECHINOCOCCUS AND OF LIVER ECHINOCOCCUS WITH PULMONARY COMPLICATIONS. *(Bul.)* Donev, M. (Res. Inst. Tuberculosis, Sofia, Bulgaria), A. Simeonov, M. Boyadžhiev and V. Levčheva. *Khirurgiia (Sofiia)* 21(6):517-523, 1968.

8715 A CASE OF HEPATIC DISTOMIASIS CAUSED BY FASCIOLA GIGANTICA, DIAGNOSED TOGETHER WITH THE INITIAL PHASE OF INFECTION BY SCHISTOSOMA MANSONI. *(Fr.)* Limbos, P. (Prince Leopold Inst. Trop. Med., Anvers, Belgium). *Acta Gastroent Belg* 31(8/9):581-590, 1968.

8716 GIGANTIC SOLITARY LIVER CYSTS. TWO CLINICAL CASES. *(It.)* Busetto, G. (Gen. Surg. Clin., U. Florence, Italy) and R. Tilli. *G Veneto Sci Med* 23(7/8):429-442, 1968.

8717 CLOSED HEPATIC INJURY. *(E.)* Allcock, E. A. (Dept. Surg., U. Melbourne, Australia). *Med J Aust* 1(2):71-73, 1968.

8718 THE RESPONSE OF JAUNDICED AND NON-JAUNDICED WEANLING RATS TO THIRSTING. *(E.)* Odell, G. B. (Johns Hopkins U. Sch. Med., Baltimore, Maryland). *Pediat Res* 2(4):237-242, 1968.

8719 PATHOGENIC CLASSIFICATION OF JAUNDICE. *(E.)* Orellana-Alcalde, J. M. (Santiago, Chile). *Rev Int Hepat* 18(1):75-82, 1968.

8720 ANESTHESIA AND LIVER FUNCTION. PART I: ANESTHETIC PROBLEMS IN LIVER DISEASE. *(E.)* Mackay, P. (Royal Melbourne Hosp., Australia) and L. W. Powell. *Med J Aust* 1(2):68-71, 1968.

8721 CLASSIFICATION OF LIVER FUNCTION TESTS. *(Rus.)* Suchkov, A. V. (1st Moscow Med. Inst., USSR). *Sovet Med* 32(6):86-90, 1969.

8722 FREQUENCY AND ETIOLOGY OF PRIMARY LIVER CANCER. *(Sp.)* Arias Vallejo, E. ( ("Hermanos Aznar" Ambulatory, Madrid, Spain). *Rev Esp Enferm Apar Dig* 28(5):601-610, 1969.

8723 USE OF THIOCTIC ACID IN THE COMPLEX TREATMENT OF PATIENTS WITH LIVER DISEASES. *(Rus.)* Iasinovskii, M. A. (Odessa Med. Inst., USSR), T. M. Terletskaia and A. F. Bondarchuk. *Vrach Delo* 50(5):9-12, 1969.

8724 THE USE OF HEROIC MEASURES IN LIVER FAILURE. *(E.)* Trey, C. (Harvard Med. Sch., Boston, Mass.) and M. Slapak. *Hosp Pract* 4(10):73-83, 1969.

8725 HEPATIC ABSCESS. AN ANALYSIS OF 86 CASES. *(E.)* Reyes, A. I. (Dr. J. R. Reyes Mem. Hosp., Manila, Philippines) and D. A. Reyes. *Int Surg* 52(2):173-178, 1969.

8726 GAS ABSCESSES OF THE LIVER. *(Rus.)* Viliavin, G. D. (A. V. Vishnevskii Inst. Surg., Moscow, USSR), A. M. Grishkevich, Iu. A. Dykhno and O. G. Zalugovskii. *Klin Khir (Kiev)* (6):14-18, 1968.

8727 RIGHT HEPATIC LOBECTOMY IN CHILDREN. [CASE REPORT] *(E.)* Cohn, R. (Stanford U. Sch. Med., Palo Alto, Calif.). *Amer J Surg* 118(4):512-516, 1969.

See also: 7732,7900,7905,7915,8109,8133,8185,8205,8299,8613,8921

**8728 LIPID METABOLISM IN THE RATS WITH FATTY LIVER CAUSED BY LOW PROTEIN DIET AND EFFECTS OF THE ORAL ADMINISTRATION OF L-METHIONINE, L-CYSTEINE, PANTETHINE AND CALCIUM PANTOTHENATE UPON IT.** *(E.)* Osumi, Y. (Fac. Med., Kyoto U., Japan), Y. Nagasaka and K. Shimamoto. *Jap J Pharmacol* 19(1):74-88, 1969.

To investigate the possible development of a fatty liver caused by the amino acids imbalance and to establish some correlation between the activity of coenzyme A and the level of neutral fat in the liver, the effects of pantethine, calcium pantothenate, L-methionine and L-cysteine on the fatty liver of rats fed a low protein diet were studied both biochemically and histologically. Feeding rats a low protein diet containing 5% casein as a source of protein for 3 weeks produced a moderate fatty liver due mainly to the accumulation of neutral fat. The supplemental daily administration of methionine or cysteine, especially the former, markedly activated the accumulation of lipids in the liver: supplements of 10 or 100 mg/kg of pantethine and 100 mg/kg of calcium pantothenate reduced slightly but not significantly the level of liver neutral fat. The low protein diet lowered the activity of liver coenzyme A, both in total and acyl coenzyme A. Pantethine (100 mg/kg) blocked the decreases in the activity of total and acyl coenzyme A. But 500 mg/kg of methionine and cysteine did not decrease the activity of acyl coenzyme A, although total coenzyme A activity was blocked by these agents. The activity of hepatic acyl coenzyme A in rats fed the low protein diet irrespective of the supplemented agents seemed somewhat to correspond with the level of liver neutral fat. However, minor changes in coenzyme A activity could not fully explain the disturbances of the hepatic lipid metabolism of rats fed the low protein diet. Many factors may be responsible for the metabolic disturbances of liver lipids in rats fed a low protein diet.

**8729 CHARACTERISTIC LESIONS OF YELLOW PHOSPHORUS-INDUCED LIVER DAMAGE.** *(E.)* Ganote, C. E. (Natl. Inst. Arthritis Metab. Dis., Bethesda, Md.) and J. B. Otis. *Lab Invest* 21(3):207-213, 1969.

Yellow phosphorus dissolved in mineral or olive oil was injected i.p. in male Sprague-Dawley rats to induce liver injury. The subcellular changes with various dose levels were studied 12-48 hr afterwards. Livers were fixed by *in vivo* vascular perfusion of gluteraldehyde, followed by immersion of pieces in 1% osmium tetroxide. Few morphologic changes were found at 12 hr, but by 24 hr there were marked increases in the amount of rough endoplasmic reticulum with little or no hypertrophy of the smooth endoplasmic reticulum. Further increases of rough endoplasmic reticulum were present at 48 hr, and the membranes often formed concentric lamellae surrounding the cytoplasmic structures and the nucleus. With severe liver damage there were also relatively nonspecific changes consisting of formation of compact masses of smooth endoplasmic reticulum, loss of polysomes and ribosomes, massive fat accumulation, and mitochondrial swelling; such changes occurred in individual cells and preceded frank necrosis. Massive increases of rough endoplasmic reticulum with formation of whorls of rough endoplasmic reticulum membranes in hepatocytes are characteristic of acute, severe phosphorus poisoning in rats.

**8730 PYOGENIC HEPATIC ABSCESSES IN INFANCY AND CHILDHOOD.** *(E.)* Dehner, L. P. (Washington U. Sch. Med., St. Louis, Mo.) and J. M. Kissane. *J Pediat* 74(5):763-773, 1969.

Twenty-seven cases of pyogenic hepatic abscesses in infants and children were studied. Before 1940 there were 11 cases in 3518 autopsies, an incidence of 0.31%, while after 1940 there have been 16 in 4179 autopsies, an incidence of 0.38%. Nine of the 11 before 1940 were boys and 7 of the 16 after 1940. The age ranged from 2 days to 13 yr. Of the 27 cases reviewed, 11 (41%) were in infants less than 2 yr of age and 18 in children 5 yr of age or younger. Beyond the age of 5, the incidence declined markedly. In 21 of the 27 cases studied autopsy revealed an extrahepatic focus of inflammation deemed sufficient to have given rise to bacteremia. In 17 (7 before 1940, and 10 since 1940) bacteremia was established by blood culture during life. Bacteremia is, therefore, in this series, the most important mechanism for the development of pyogenic hepatic abscesses in infants and children.

**8731 STUDIES ON OROTIC ACID FATTY LIVER IN RATS: FACTORS INFLUENCING THE INDUCTION OF FATTY LIVER.** *(E.)* Sarma, D. S. R. (U. Pittsburgh, Sch. Med., Pa.) and H. Sidransky. *J Nutr* 98(1): 33-40, 1969.

Orotic acid methyl ester, a more water-soluble derivative of orotic acid, when force-fed (0.7 g/10 g body weight daily) with diet, or when administered i.p. to fed Sprague-Dawley, female rats (140-150 g) induced a fatty liver, increased hepatic glycogen and increased hepatic total uridine nucleotides. Hepatic ATP levels decrease when orotic acid was added to a purified diet and fed *ad libitum* or by force-feeding. In force feeding experiments when control and experimental animals were killed 14-16 hr after the last tube-feeding, hepatic ATP levels were equally low in both groups. Under these conditions levels in control animals dropped to the sustained low levels in the experimental animals. Rats fed a diet containing lactose, calcium lactate and orotic acid did not develop fatty liver, yet had relatively low levels of hepatic ATP. Moderately high levels of hepatic uridine nucleotides were found and this indicates that there is no significant interference with orotic acid utilization. Experiments with fasted or fed animals given orotic acid or orotic acid methyl ester, diet appears to play an important role in the utilization of orotic acid and in the maintenance of elevated hepatic uridine nucleotide levels. Using the luciferin-luciferase method for assay of hepatic ATP levels, it was found that the livers of rats fed orotic acid had a stabilizing effect on the luminescence due to ATP. UDP had an inhibitory effect on the luminescence due to ATP.

**8732 MINOR HEPATIC FUNCTIONAL CHANGES DURING UTILIZATION OF CONTRACEPTIVE ESTROPROGESTATIVES.** *(Fr.)* Toulet, J. (Internatl. Hosp., U. Paris, France) and C. Hennequin. *Rev Int Hepat* 19(3):117-141, 1969.

Several tests of liver function were carried out on 26 women (20-29 yr old), who had been using oral contraceptives during 2-48 months. Blood bilirubinemia, total cholesterol, total lipids, levels of alkaline phosphatase, SGOT and SGPT activity, and serum determinations were almost never abnormal. Study of diuresis and of induced galactosuria revealed slight alterations in 22. The BSP test in 17 patients showed an abnormally high retention after 45 min. These were often associated with slight modifications in Hanger's and Closs's tests. Repeated examinations in 4 subjects showed that these alterations were not progressive.

8733 **ACUTE HEPATIC NECROSIS WITH STUPOR OR COMA. AN ANALYSIS OF THIRTY-ONE PATIENTS.** *(E.)* Ritt, D. J. (U. Texas Southwestern Med. Sch., Dallas), G. Whelan, D. J. Werner, E. H. Eigenbrodt, S. Schenker and B. Combes. *Medicine (Balt)* 48(2):151-172, 1969.

Thirty-one patients who developed stupor or coma during the course of acute hepatocellular disease have been analysed. Halothane anesthesia accounted for 7, serum hepatitis for 10 (8 after blood transfusions within 6 months and 2 addicts after i.v. administration of drugs), infectious hepatitis for 13, and ingestion of carbon tetrachloride for 1. Only the latter survived. Clinical course, laboratory data and pathologic findings in liver were similar regardless of the etiology. Marked prolongation of the one-stage prothrombin time, very high values for serum bilirubin and marked leukocytosis distinguished these patients from a larger group who survived an episode of acute hepatocellular disease uncomplicated by hepatic encephalopathy. Reduction of serum prothrombin activity to less than 50% of normal was the most sensitive index of severe acute hepatic necrosis. Correlations of clinical course with changes in prothrombin times in individual patients with severe acute hepatic necrosis suggest that this test may be of value in appraising functional hepatic mass. Serious complications such as infection, peptic ulcer with bleeding or perforation, and renal insufficiency were observed with significant frequency. In some instances these appear to have been the consequence of therapy used in management, and to have accounted for death. Steroids, exchange transfusions and peritoneal dialysis were of little benefit. No therapy now in use for patients with acute hepatic necrosis in coma beyond general supportive measures is of value in salvaging life.

8734 **ACUTE LIVER LESIONS RESULTING FROM PERCUTANEOUS ABSORPTION OF AFLATOXINS.** *(E.)* Ungar, H. (The Hebrew U. Hadassah Med. Sch., Jerusalem, Israel) and A. Z. Joffe. *Path Microbiol (Basel)* 33(2):65-76, 1969.

Hepatic lesions were observed 48 hr after application of aflatoxin B to multiple areas of depilated rabbit skin. Total doses of 1.4 mg/kg to 10 mg/kg body weight, each dose divided in 2 and administered 24 hr apart produced a midzonal fatty change and hyaline necrosis of liver cells. All animals receiving aflatoxin in this range showed diffuse loss of glycogen which was preserved only around the hepatic veins. A similar loss of glycogen was also observed in rabbits treated with lower doses between 0.4 and 3.0 mg (0.16-1.25 mg/kg). In view of the precaustions taken to prevent inadvertent contamination of the food by toxin or licking of treated areas by animals, the hepatic changes are regarded as the result of percutaneous absorption.

8735 **HETEROLOGOUS LIVER PERFUSION FOR HEPATIC COMA.** *(Nor.)* Flatmark, A. (Munic. Hosp., Oslo, Norway), S. Aune, B. Otnes, R. Nesbakken, J. R. G. Schistad, M. Lie, M. Raeder, A. Jakobsen Jr., S. Skulberg, P. Lilleaasen and E. Gjone. *T Norsk Laegeforen* 89(11):809-813, 1969.

8736 **RESECTIONAL THERAPY IN MASSIVE LIVER INJURY.** *(E.)* Nemhauser, G. M. (UCLA Sch. Med., Los Angeles, Calif.), R. J. Cleveland and J. R. Benfield. *Rev Surg* 25(6):446, 1968.

8737 **AN EXPERIMENTAL INVESTIGATION INTO THE HEPATOTOXIC EFFECTS OF HALOTHANE.** *(E.)* Eger, W. (Dept. Exp. Pathol., U. Gottingen, Germany) and H. Nassr-Esfahani. *German Med Monthly* 12(10):490-492, 1967.

8738 **BARBITURATE JAUNDICE. REPORT OF A CASE DUE TO A BARBITAL-CONTAINING DRUG, WITH POSITIVE RECHALLENGE TO PHENOBARBITAL.** *(E.)* Pagliaro, L. (Inst. Gen. Med. Clin., U. Palermo, Italy), G. Campesi and F. Aguglia. *Gastroenterology* 56(5):938-943, 1969.

8739 **"THOROTRAST"-INDUCED HEPATOMA WITH DYSIMMUNOGLOBULINEMIA. [CASE REPORT]** *(E.)* Forbes, I. J. (Dept. Med., U. Adelaide, Woodville, S. Africa), R. A. Geddes and N. M. Wood. *Med J Aust* 1(18):762-765, 1968.

8740 **BIOCHEMICAL DISTURBANCES IN LIVER INJURY.** *(E.)* Judah, J. D. (U. Coll. Hosp. Med. Sch., London, England). *Brit Med Bull* 25(3):274-277, 1969.

8741 **EXCHANGE TRANSFUSION AS TREATMENT OF ACUTE HEPATIC FAILURE DUE TO ANTITUBERCULOSIS DRUGS. [CASE REPORT]** *(E.)* Lederman, R. J. (Gerontol. Res. Ctr., NIH, Baltimore, Md.), F. B. Davis and P. J. Davis. *Ann Intern Med* 68(4):830-838, 1968.

8742 **STUDIES ON AMINOACETONITRILE AND ITS RELATED COMPOUNDS. II. INFILTRATION OF THE PONTAMINE SKY BLUE INTO POISONED MOUSE LIVER CELLS, AND ITS PROTECTION BY AMINOACETONITRILE.** *(Jap.)* Nishino, K. (Kyorin Chem. Lab., Japan), K. Ushiyama, H. Shinoda, Y. Hasegawa and T. Irikura. *J Pharm Soc Jap* 88(7):811-815, 1968.

8743 **STUDY OF TRIACETYLOLEANDOMYCIN IN THE PREVENTION OF RHEUMATIC FEVER: ITS EFFECTS ON LIVER FUNCTION.** *(Fr.)* Gilbert, G. (Inst. Cardiol., Montreal, Canada), B. Tardif, M. Lefebvre and P. David. *Laval Med* 38(10):911-914, 1967.

8744 **LIVER OF ALCOHOLICS.** *(Ser.)* Despotović, A. (Dispensary Treatment Alcoholics, Belgrade, Yugoslavia), C. Šmid-Vesel, L. Rašić-Todorović and D. Vranjesevic. *Anali Boln Stojan* 6(2/3):231-237, 1967.

8745 **LIVER DAMAGE IN LEPTOSPIROSIS.** *(Cz.)* Hrůzik, J. (Med. Fac., Comenius U., Bratislava, Czechoslovakia), Š. Májek, P. Černák, O. Bálint and F. Tomík. *Cas Lek Cesk* 106(46):1240-1245, 1967.

8746 **METHOTREXATE AND THE LIVER.** *(E.)* Baker, H. (Inst. Dermatology, London, England) and M. G. C. Dahl. *Brit J Derm* 81(6):465-467, 1969.

8747 **A SEVERE CASE OF CLOSED ABDOMINAL TRAUMA WITH EXTENSIVE LIVER DAMAGE.** *(It.)* Ferraris, F. (Chivasso State Hosp., Italy). *Gaz Int Med Chir* 74(2):158-171, 1969.

8748 **RECURRENT JAUNDICE AND FATAL LIVER-CELL NECROSIS FOLLOWING A SECOND ADMINISTRATION OF HALOTHANE.** *(E.)* Wilbert, L. (Dept. Med., U. Gottingen, Germany) and W. Creutzfeldt. *German Med Monthly* 12(8):360-362, 1967.

8749 **HYPOXIC FATTY LIVER DEGENERATION IN SUCKLING RATS.** *(E.)* Chiodi, H. P. (Inst. Environmental Stress, U. California, Santa Barbara) and R. Bass. *Fed Proc* 28(3):1080-1084, 1969.

8750 **HEALTH HAZARDS OF CARBON TETRACHLORIDE.** *(Ger.)* Hoschek, R. (Stuttgart, Germany). *Materia Med Nordmark* 21(3):257-264, 1969.

See also: 7754,7762,7764,7878,7894,7897,7908,7910,7934

## Viral Hepatitis

### 8751 VIRAL HEPATITIS. IMMUNOGLOBULIN RESPONSE DURING THE COURSE OF THE DISEASE.

*(E.)* Giles, J. P. (New York U. Sch. Med.) and S. Krugman. *JAMA* 208(3):497-503, 1969.

The serum immunoglobulin response was studied in 30 children with infectious hepatitis, MS-1 type (typical infectious hepatitis) and 28 children with infectious hepatitis, MS-2 type (which resembles serum hepatitis). IgG, IgM and IgA levels were determined during the incubation, the acute, and the convalescent phases. A typical response of a patient with MS-1 type hepatitis was: jaundice detected on the 42nd day of the incubation period, SGOT activity abnormal on the 36th day, and the thymol turbidity level became abnormal on the 39th day. All three immunoglobulin determinations became abnormal by the 40th day. Peak levels occurred at the time of jaundice onset which coincided with peak SGOT activity. IgG and IgM levels returned to normal 30-40 days after onset of jaundice, but IgA levels declined after 15-20 days. Other less typical responses are described and shown in tables, but the most consistent response was in the IgM levels which were abnormal in all 30 children with infectious hepatitis, M-S 1 type. The IgM level first became abnormal 304 days after an increase in SGOT levels. The rise was fairly abrupt and correlated well with the thymol turbidity pattern. The abnormal IgM levels persisted for 5-35 days (average: 17 days). There was no correlation between the height and persistence of the IgM response and the presence or absence of jaundice. (The hepatitis was anicteric in 19 of the 30 children.) An abnormal IgG pattern was seen in 25 of 30 children. Peak levels occurred shortly after peak IgM values. IgA response was normal in 18 of 30 and abnormal in the other 12. In general the pattern followed the IgG pattern. In patients with infectious hepatitis, Ms-2 type, there were 2 patterns: IgM levels were normal during the acute phase of the disease from day 60 to day 120. (On day 170 a rise in IgM level was seen in 7 patients.) IgG levels were increased intermittently without any relationship to the disease state. IgA levels were generally normal throughout the course of the disease. A minimal IgM response was observed in the acute phase. Of 8 patients with this minimal response, 6 had concomitant rise in thymol turbidity level. The results of serial determinations of immunoglobulin levels together with serial SGOT and thymol turbidity determinations may be useful to differentiate the 2 types of viral hepatitis.

### 8752 SMALL INTESTINAL MORPHOLOGY IN INFECTIOUS HEPATITIS.

*(E.)* Kudzma, D. J. (Wilford Hall USAF Hosp., Lackland Air Force Base, Texas), E. W. Peterson and K. B. Knudsen. *Arch Intern Med (Chicago)* 124(3):322-325, 1969.

Eighteen patients (14 male, 4 female; ages 14-56 yr) with acute infectious hepatitis underwent small-bowel biopsy. It was impossible to distinguish biopsy specimens of patients with hepatitis from those of controls. The epithelium was normal in every patient. In none of the 18 patients were significant abnormalities in small intestinal morphology discovered by light microscopy. Villous architecture was normal in every patient. Reported ubiquity of abnormal small-bowel mucosa from various causes in the population of certain areas of the world, and the present findings, indicate that it has not yet been proved that subtotal villous atrophy is a feature of infectious hepatitis. An extreme degree of distortion would seem uncommon in infectious hepatitis in the U.S., and subtotal villous atrophy should still suggest the diagnosis of sprue before all other diagnoses. Without control specimens, a mucosal lesion should not be attributed to the condition being investigated.

### 8753 EPIDEMIOLOGY AND CLINICAL FEATURES OF ACUTE VIRAL HEPATITIS.

*(E.)* Muting, D. (1st Med. Clin., U. Saar, Germany) and G. Mehler. *German Med Monthly* 14(4):178-182, 1969.

A total of 578 patients were treated for hepatitis during a 10 yr span. Transition to chronicity or hepatic coma occurred in 17% of those with prior liver damage, 20% of those with diabetes, but only 6% of those without prior liver damage. In 43% the history indicated that the illness was serum hepatitis. The overall mortality was 3.3%, that among serum-hepatitis patients 5.6% and among patients who had had blood transfusions 7.9%. In 9% of the patients the illness remained anicteric. Statistically significant differences from a control group of persons with a healthy liver were found especially in respect of total serum bilirubin, serum glutamate-pyruvate-transaminase and serum iron, but also in respect of serum albumin, globulin, prothrombin, the Takata reaction and serum-alkaline phosphatase. In the acute stage of hepatitis there was a marked rise in antistreptolysin titer, to some extent in parallel with an increase in serum bilirubin. The more severe cases of serum hepatitis were marked by a higher incidence of transition to chronicity or hepatic coma (11.4% for serum hepatitis, 14.5% following blood transfusion, but only 2.5% for infectious hepatitis). The more severe course was also associated with a significant difference in the duration of treatment between the patients with infectious hepatitis and those with an occupational origin of the disease, and those in whom the route of infection was unknown. This observation suggests that there was probably a considerable proportion of cases of serum hepatitis among the latter 2 groups. Glucose tolerance tests at the onset of hepatitis gave results significantly different from those observed in a group of metabolically normal persons.

### 8754 PERSISTENT HAEMOLYSIS AFTER INFECTIOUS HEPATITIS.

*(E.)* Conrad, M. E. (Walter Reed Army Inst. Res., Washington, D. C.). *Gut* 10(7):516-521, 1969.

Serial clinical and laboratory studies in 68 soldiers with viral hepatitis revealed 3 with a compensated hemolytic disorder which lasted from 1-3 yr. Each patient had clinical and laboratory studies and histological findings in a liver specimen which were compatible with a diagnosis of infectious hepatitis. One yr after the clinical onset of hepatitis these 3 patients were asymptomatic but had reticulocytosis and indirect bilirubinemia. Laboratory tests which had been suggestive of liver damage had become normal. A shortened $^{51}$Cr survival of both the patients' RBC and labelled donor cells indicated that the hemolytic disorder was extracorpuscular. RBC antibodies were not demonstrated in blood specimens. That the hemolytic state was caused by hypersplenism seems unlikely because the spleen did not remain palpable, and there were normal numbers of circulating WBC and platelets. The persistence of a hemolytic disorder could not be related either to the severity or duration of acute liver disease or relapsed hepatitis.

8755 **EFFECT OF CORTICOSTEROIDS ON MOUSE HEPATITIS VIRUS INFECTION.** *(E.)* Datta, D. V. (Harvard Med. Sch., Boston, Mass.) and K. J. Isselbacher. *Gut* 10(7):522-529, 1969.

To study the effect of corticosteroids on mouse hepatitis virus infection male Swiss-Webster weanling mice were inoculated i.p. with 0.1 ml virus (MHVS or MHV-A59) or 0.1 ml normal liver inoculum, and 0.1 ml of steroid solution i.m. (hydrocortisone or methyl prednisolone). A deleterious effect was noted when corticosteroids were administered before or early in the course of the viral hepatitis. This effect was reflected by increases in plasma glutamic pyruvic transaminase and $\beta$-glucuronidase, by severe histopathological changes in the liver, and by a higher mortality rate. The deleterious effects were most pronounced with high doses of corticosteroids but could be demonstrated with as little as 0.05 mg of hydrocortisone/day or 0.1 mg of methyl prednisolone. When corticosteroid treatment was delayed until 7 or 9 days after virus inoculation, no deleterious effect was observed. Infected animals pretreated with hydrocortisone showed from 50-fold to a more than 1,000-fold increase of virus in the liver compared with untreated infected animals. It is probable that the increase of virus in the liver is an important factor in the increased severity of mouse hepatitis virus infection in animals treated with corticosteroids.

8756 **ULTRASTRUCTURAL ASPECTS OF THE LIVER IN VIRAL HEPATITIS.** *(E.)* Pavel, I. (Dr. I. Cantacuzino Hosp., Bucharest, Romania), S. Campeano, H. Bonaparte and A. Petrovici. *Digestion* 2(4):221-229, 1969.

Liver biopsies from 5 patients (19-40 yr old) with viral hepatitis were used for ultrastructural studies studies of the liver cells. The character of the observed disturbances was variable with a rather scattered distribution, without any specificity for this disease. On the other hand remarkable and original patterns were observed in the intracellular spaces: a winding process, the presence of electron-opaque grains (probably formed from biliary pigments), dilatation of intercellular spaces between junctional complexes, and joining of the cellular membrances with complete disappearance of the intercellular spaces. All the disturbances in the ultrastructure of the intercellular spaces seemed to aid in clarifying the pathogenesis of jaundice in many cases of viral hepatitis. It may result from a sort of functional blocking of the tight junctions which, in its turn, may precede or be the consequence of some functional perturbations, present all along the length on the intercellular spaces situated between Disse's space and the biliary canaliculi.

8757 **HEPATITIS ON BOARD OF SEAGOING VESSELS AND TRAWLERS.** *(E.)* Goethe, H. (Bernhard-Nocht-Inst. Trop. Maritime Dis., Hamburg, Germany). *Bull Inst Mar Med Gdansk* 19(1/2):31-35, 1968.

8758 **3RD INTERNATIONAL SYMPOSIUM ON VIRAL HEPATITIS AND POST-HEPATITIS CONDITIONS.** *(Rus.)* Tareiev, Ie. M., I. D. Mansurova, S. P. Sorinson, I. F. Barinskii and M. Ie. Semendiaieva. *Sovet Med* 32(6):148-152, 1969.

8759 **FORMATION OF BLOOD CELLS IN THE LIVER DURING THE ACUTE PHASE OF VIRAL HEPATITIS. ELECTRON MICROSCOPIC STUDIES.** *(Rus.)* Shumkina, O. B. (D. I. Ivanovskii Inst. Virol., Moscow, USSR), B. K. Bezprozvannyi, T. I. Gorbunova and I. V. Shakhgil'dian. *Arkh Pat* 30(7):42-49, 1968.

8760 **MATERIALS ON EPIDEMIOLOGICAL GEOGRAPHY OF EPIDEMIC HEPATITIS IN THE USSR).** *(Rus.)* Cherkasskii, B. L. (Cent. Inst. Epidemiol., Moscow, USSR), E. R. Pille, V. N. Semenova and L. I. Saravaiskaia. *Zh Mikrobiol* 45(5):112-117, 1968.

8761 **PLANNED USE OF GAMMAGLOBULIN FOR PROPHYLAXIS OF VIRAL HEPATITIS IN MARIISK ASSR.** *(Rus.)* Tsyrul'nikov, G. V. (Leningrad Sanit. Hyg. Med. Inst., USSR). *Zh Mikrobiol* 45(5):138, 1968.

8762 **RECOVERY FROM APLASTIC ANAEMIA ASSOCIATED WITH INFECTIOUS HEPATITIS. [CASE REPORT]** *(E.)* McGuinness, A. E. (Sydney Hosp., Australia) and A. Joasoo. *Med J Aust* 1(21):1090-1092, 1969.

8763 **LIV. 52 IN INFECTIVE HEPATITIS.** *(E.)* Jaffari, S. M. H. (Fever Hosp., Hyderabad, India) and S. Raj. *Antiseptic* 66(5):353-356, 1969.

8764 **AUSTRALIA ANTIGEN AND HEPATITIS.** *(E.)* Anonymous. *Lancet* 2(7612):143-144, 1969.

8765 **THERAPY OF ACUTE VIRUS HEPATITIS.** *(Rev.) (Ger.)* Kuhn, H. A. (Med. Clin., Justus Liebig U., Giessen, Germany) and K. Schultis. *Med Welt* 20(23):1341-1343, 1969.

8766 **ETIOLOGY OF VIRAL HEPATITIS.** *(It.)* Portella, A. *Rass Int Clin Ter* 47(19):1096, 1967.

8767 **EVALUATION OF THE EFFECTIVENESS OF ANTIEPIDEMIC AND PROPHYLACTIC MEASURES IN VIRAL HEPATITIS.** *(Rus.)* Shteinbakh, A. Ie. (Donetsk Med. Inst., USSR), N. N. Lapin, Ie. M. Shevchenko and F. S. Ptashkina. *Zh Mikrobiol* 45(4):7-11, 1968.

8768 **VIRAL HEPATITIS AND ALLERGY.** *(Rus.)* Kirilenko, V. A. (Vinnitsa Med. Inst., USSR). *Zh Mikrobiol* 45(4):11-13, 1968.

8769 **INFECTIOUS HEPATITIS IN CHILDREN. PART I: GENERAL CLINICAL FEATURES AND PROGRESS IN 300 PATIENTS.** *(E.)* Harris, M. J. (Prince Henry Hosp., Sydney, Australia) and J. Beveridge. *Med J Aust* 2(13):594-596, 1967.

8770 **INFECTIOUS HEPATITIS IN CHILDREN. PART 2: LABORATORY FINDINGS IN 300 PATIENTS.** *(E.)* Harris, M. J. (Prince Henry Hosp., Sydney, Australia) and J. Beveridge. *Med J Aust* 2(13):646-649, 1967.

8771 **IMMUNE SERUM GLOBULIN (GAMMA GLOBULIN) IN PREVENTION OF INFECTIOUS HEPATITIS.** *(Ser.)* Jelić, O. (Med. Ctr., Slavonski Brod, Yugoslavia) and A. Jelić. *Lijecn Vjesn* 89(5):361-364, 1967.

8772 **IMMUNOBLOBULIN COMPOSITION IN A GROUP OF SUBJECTS DURING AN INTERVAL OF 6 MONTHS TO 5 YEARS AFTER HEPATITIS.** *(It.)* Banterle, C. (Inst. Infect. Dis., U. Milan, Italy), F. Medina and F. Milazzo. *G Mal Infett* 20(7):659-664, 1968.

8773 **RESULTS OF INTESTINAL BIOPSIES IN VIRAL HEPATITIS IN CHILDREN.** *(It.)* Tolentino, P. (Inst. Infect. Dis., U. Genoa, Italy), C. Jannuzzi and A. Campelli. *G Mal Infett* 20(7):684-687, 1968.

8774 **COMPARATIVE ELECTROPHORETIC AND IMMUNOLOGICAL ANALYSIS OF THE SOLUBLE LIVER PROTEINS AND OF THE BLOOD SERUM PROTEINS IN EXPERIMENTAL HEPATITIS.** *(Rus.)* Tsukrova, F. M. (A. V. Lunacharskii Astrakhan Med. Inst., USSR). *Biull Eksp Biol Med* 66(11):40-42, 1968.

8775 **THE LIVER-SACRAL RATIO OF COLLOIDAL RADIOGOLD IN CIRRHOTIC AND NORMAL PATIENTS.** *(E.)* Morris, J. G. (Dept. Med., U. Sydney, Australia), J. McRae and B. D. Doust. *Aust Radiol* 12(2):134-135, 1968.

8776 **MINERAL WATER METABOLISM DURING VIRAL HEPATITIS IN CHILDREN.** *(Rus.)* Martynkin, A. S. (Leningrad Pediat. Med. Inst., USSR). *Vop Okhr Materin Dets* 12(8):89-90, 1967.

8777 **ENZYMOLOGY OF CHRONIC HEPATITIS.** *(Cz.)* Ninger, E. (Clin. Infect. Dis., Purkyne U., Brno, Czechoslovakia) and P. Ježek. *Cas Lek Cesk* 106(46):1238-1240, 1967.

8778 **IMPORTANCE OF SPLEEN TUMORS IN CONNECTION WITH INFECTIOUS HEPATITIS IN CHILDREN.** *(Ser.)* Cezner, M. (Med. Fac., Rijeka, Yugoslavia). *Acta Fac Med Fluminen* 2(1):83-98, 1967.

8779 **CORRELATION OF BIOCHEMICAL AND HISTOPATHOLOGICAL FINDINGS IN ACUTE VIRAL HEPATITIS.** *(Sp.)* Valdivia Carpio, H. (Med. Fac., U. Natl. Mayor San Marcos, Lima, Peru) and R. Figueroa B. *An Fac Med Lima* 50(1):90-104, 1967.

8780 **STUDIES ON THE PREVENTION OF VIRAL HEPATITIS BY NORMAL HUMAN IMMUNOGLOBULIN (GAMMAGLOBULIN).** *(Fr.)* Spînu, I. (Inst. Med. Pharm., Bucharest, Romania), O. Zavate, N. Constantinesco, I. Manta and G. Avram. *Arch Roum Path Exp Microbiol* 26(3):543-550, 1967.

See also: 8368

## Cirrhosis

8781 **FOLLOW UP RESULTS OF THE SURGERY OF PORTAL HYPERTENSION FOR ALCOHOLIC CIRRHOSIS. (73 OBSERVATIONS).** *(Fr.)* Mousseau, M. (C. H. U., Nantes, France), J. Visset and Lenne. *Mem Acad Chir (Paris)* 95(20/21):612-619, 1969.

The clinical results of surgery for portal hypertension in 73 patients with alcoholic cirrhosis are presented. In 62 patients the operations performed were: 46 termino-lateral portacaval anastomoses, 4 latero-lateral protacaval anastomoses, 1 omphalocaval anastomosis, 1 portal ligation. There were 8 postoperative deaths. Five patients died within the 1st yr, all from hepatic insufficiency. Of 36 patients surviving more than 1 yr, the general condition was excellent in 8, good in 18, average or poor in 8, not defined in 2. Follow up studies showed a survival of 24 patients after 3 yr, of 19 after 4 yr, of 11 after 5 yr, of 9 after 6 yr, of 4 after 7 yr, and 3 after 8 yr. There were 15 deaths: 10 in subjects who resumed their drinking (8 hepatic insufficiency, 1 acute pulmonary infection, 1 accident); 3 in abstinent patients (1 pulmonary tuberculosis, 1 rectum cancer, 1 hepatic insufficiency); 2 in patients where the alcoholism was not determined (suppurations by staphylococcus). Thirteen additional patients, subjected to emergency surgery: 7 terminolateral portacaval anastomoses, with 6 deaths; 3 spleno-renal anastomoses, with death of all; 3 ligation of the esophageal varices, followed, in 2 cases, by terminolateral portacaval anastomosis, and by death from hepatic insufficiency in 1.

8782 **ALCOHOLIC CIRRHOSIS AMONG THE NAVAHO.** *(E.)* Kunitz, S. J. (Dept. Sociology, Yale U., New Haven, Conn.), J. E. Levy and M. Everett. *Quart J Stud Alcohol A* 30(3):672-685, 1969.

Navaho drinking behavior was studied using the incidence of and the death rates due to Laennec's cirrhosis as a gauge of high alcohol intake. Navaho mortality rates due to cirrhosis are about half that of the entire country. Navaho mortality rates were also lower than that of other Indian tribes. Mortality rates increased among urban Navahos as opposed to those on rural reservations; this may be due to the easy availability of alcohol in the city. The stresses from rapid forced social change from rural to city may be responsible for some of the problem drinking. Lower rates of cirrhosis among Navahos than among Whites are not likely to be due to an inherited resistance.

8783 **STUDIES ON THE OUTFLOW TRACTS OF THE LIVER: III. QUALITATIVE OBSERVATIONS IN NORMAL MAN AND IN PATIENTS WITH HEPATIC CIRRHOSIS.** *(E.)* Moreno A. H. (New York U. Sch. Med., N. Y.), A. R. Burchell, L. M. Rousselot and J. H. Burke. *Ann Surg* 170(1):63-73, 1969.

Cinefluorographic observations of hepatic (splanchnic) outflow tracts in 11 normal men show 2 types of intermittencies, 1 associated with right atrial activity, and the other with the respiratory cycle. In normal subjects hepatic outflow ceases during inspiration and resumes during expiration and expiratory pauses. Mechanical compression of the liver by the descending diaphragm arrests hepatic outflow during inspiration. In the advanced hepatic cirrhosis of 30 patients cardiac oscillations disappeared in 80% and inspiratory arrest in slightly over 50%. Disappearance of both intermittencies may be ascribed to fibrous hardening of the cirrhotic liver. In the absence of normal inspiratory increment in resistance to flow through the liver, splanchnic outflow accelerates during inspiration in many patients with cirrhosis. The normal respiratory alternation of systemic and splanchnic contributions to flow in the inferior vena cava no longer exists. After side-to-side portacaval anastomosis in 6 individuals the hepatic outflow through the hepatic veins and through the cephalic limb of the shunt accelerates during inspiration. It is postulated that disruption of the normal respiratory alternation of flows in the inferior vena cava contributes to the hyperdynamic circulatory state of many patients with advanced cirrhosis. Aggravation of this state following portacaval anastomosis seems to support this view.

8784 **PROPHYLACTIC PORTACAVAL ANASTOMOSIS IN CIRRHOTIC PATIENTS WITH ESOPHAGEAL VARICES AND ASCITES. EXPERIMENTAL DESIGN AND PRELIMINARY RESULTS.** *(E.)* Conn, H. O. (VA Hosp., West Haven, Conn.) and W. W. Lindenmuth. *Amer J Surg* 117(5):656-661, 1969.

To determine whether prophylactic portacaval anastomosis will increase survival in cirrhotic patients with cirrhosis, studies were made of 70 patients with histologically proved cirrhosis and esophageal varices. Excluded from the group were 8 patients because of age, 4 because splenic pulp pressure was below 250 mm $H_2O$ and 4 because of other nonhepatic disorders The patients were grouped as follows: 25 patients without ascites comprised the Nonascitic Group, 12 patients in whom portacaval shunts were successfully accomplished comprised the Prophylactic Shunt Group, 1 patient selected for but refusing to undergo shunting made up the Refusal Group and 16 patients comprised the Control Group. Of the Control group, 7 of the 16 patients (44%) died during a follow-up period of 1-40 months. In the Prophylactic Shunt Group 1 of the 12 patients (9%) died during a similar follow-up period. There were no operative deaths. The patient in the Refusal Group died, possibly due to excessive drinking. In the Nonascitic Group, 10 of the 25 patients (40%) died. Gastrointestinal hemorrhage occurred in 6 patients in the Control Group, in 7 of the Nonascitic Group. There was no bleeding in the Prophylactic Shunt Group or in the Exclusion Group. Portal systemic encephalopathy occurred in 4 patients (25%) in the Control Group, in 3 patients (25%) in the Prophylactic Shunt Group, in 2 patients (8%) of the Nonascitic Group and in 4 patients (25%) of the Exclusion Group. Cirrhotic patients with ascites are particularly prone to bleed from varices; prophylactic portacaval shunts can be accomplished in these patients with acceptably low operative mortality and the incidence of variceal hemorrhage and death can be decreased by portacaval shunts.

8785 **DEHYDROGENASE ACTIVITY IN LIVER BIOPSIES FROM PATIENTS WITH CIRRHOSIS.** *(E.)* Myren, J. (Ulleval Hosp., Oslo, Norway). *Scand J Gastroent* 4(4):325-327, 1969.

Biopsies from 25 patients (6 women, 19 men) average age 51 yr (range 20-69 yr) were obtained from the right liver lobe by a menghinis needle. Two biopsies were taken from each patient and one was fixed in 4% formalin for paraffin embedding and staining with hematoxylin and eosin. The other was frozen on dry ice, and cryostat sections were incubated in an isotonic phosphate buffer containing Nitro-BT and specific substrates at pH 7.4 and 37C for 15 min. The degree of fibrosis was recorded on a scale of O-III:O showing normal liver tissue; I slight fibrosis with less than 10% of the area of the liver lobules occupied by fibrosis; II, moderate fibrosis; and III, severe fibrosis with more than 50% occupied by connective tissue, leukocytes and bile ducts. The histochemically demonstrated activities of succinic - (SDH) NADH- and NADPH- dehydrogenase were compared with the extent of fibrosis. In patients with moderate or severe cirrhosis a lower activity of SDH was observed than in biopsies from those without or with slight alterations. Liver failure may be caused by a decrease in SDH- activity in addition to a reduction in liver cell mass by the fibrosis.

8786 **THE HEPATIC METABOLISM OF ETHANOL IN PATIENTS WITH CIRRHOSIS OF THE LIVER.** *(E.)* Winkler, K. (Dept. Biochem A., U. Copenhagen, Denmark), F. Lundquist and N. I. Tygstrup. *Scand J Clin Lab Invest* 23(1):59-69, 1969.

Splanchnic ethanol uptake was lower in 20 patients (10 male, 10 female average age 58.6 yr) with cirrhosis than in normals. Ethanol was administered into the hepatic vein as a 10 mg priming dose and then as a continuous 475 μg/min infusion. The accelerating effect of fructose on ethanol metabolism was smaller in cirrhosis. From studies of 3 portacaval shunts, it appeared that acetate, formed from ethanol, was not metabolized in the liver. The peripheral metabolism of acetate, glucose and lactate was diminished in cirrhosis.

8787 **THE VALUE OF ANGIOGRAPHIC METHODS IN DIAGNOSTIC ASSESSMENT OF LIVER DAMAGE IN PORTAL HYPERTENSION.** *(E.)* Galmarini, D. (Sch. Med. State U. Milan, Italy), L. R. Fassati, G. Riquier, G. Trivellini and P. G. Zanoli. *S Afr Med J* 43(24):743-746, 1969.

A 10 yr investigation of over 400 subjects suffering from recognized or presumed portal hypertension was carried out with the help of vascular semeiotic tests (splenoportography, phlebography of suprahepatic veins, selective hepatic arteriography and angio-lymphography) and correlated with liver function studies histopathological data provided by hepatic biopsy. Suprahepatic phlebography appeared to be the only method for assessing the amount of damage suffered by the liver. Selective arteriography and splenoportography proved inadequate when it came to identifying structural liver changes in all kinds of portal hypertension. Phlebography of the suprahepatic venous system will also reveal any kind of liver damage that may subsequently develop into cirrhosis, as the method supplies valuable information on the finer morphology of venous roots. The use of angiographic tests in patients with portal hypertension also proves extremely valuable in determining whether or not surgery is indicated, and which portal-systemic shunt should be selected.

8788 **SEPARATE AUTOIMMUNE MECHANISMS FOR 7S AND 19S GLOBULINS IN LAENNEC'S CIRRHOSIS.** *(E.)* Zinneman, H. H. (U. Minnesota Sch. Med., Minneapolis) and D. F. Levi. *Arch Intern Med (Chicago)* 124(2):153-159, 1969.

Isolated 19s (IgM) and 7s (IgG and IgA) from 3 cirrhotic patients, normal human sera, and 19s from 2 patients with Waldenstrom's macroglobulinemia were conjugated with fluorescein isothiocyanate and incubated with liver, kidney and thyroid and adrenal glands from normal humans as well as from patients with alcoholic cirrhosis and other liver diseases. Neither 19s nor 7s globulins of normal subjects, nor 19s of patients with macroglobulinemia were bound to any of the tissues. The 19s from all 3 cirrhotic patients was bound to the nuclei of cirrhotic or noncirrhotic livers as well as to the nuclei of adrenal, thyroid, and pancreatic cells. The 7s from all 3 cirrhotic patients was bound to necrotic liver tissue, but not to normal liver tissue or other human organs. These preliminary results suggest a secondary antibody response to antigenically altered constituents of hepatic cells.

8789 **PORTO-RENAL-CAVAL ANASTOMOSIS: A SHUNT FOR PORTAL HYPERTENSION.** *(Fr.)* Collin, R., H. Michel, M. Brabet and L. Bertrand. *Mem Acad Chir (Paris)* 94(8/9):251-257, 1968.

8790 **THE INTRAHEPATIC BILIARY DUCTS IN COMMON CIRRHOSIS. STUDIES WITH INJECTIONS.** *(Fr.)* Diebold, J. (Fac. Med. Paris, France), J. P. Camilleri and T. Caulet. *Arch Anat (Paris)* 16(1):15-23, 1968.

8791 **CHOICE OF A PORTACAVAL ANASTOMOSIS IN ADULT PORTAL HYPERTENSION. ABOUT 258 PORTAL-SYSTEMIC DERIVATIONS.** *(Fr.)* Hivet, M. (Saint-Antoine Hosp., Paris, France), B. Fouet, J. Richarme and J. P. Chevrel. *Presse Med* 76(3):115-117, 1968.

8792 **ON SOME PECULIAR SCINTIGRAPHIC FEATURES IN LIVER CIRRHOSIS.** *(It.)* Costantino, D. (Inst. Clin. Med., U. Milan, Italy), G. Pozza and G. Sorgato. *Acta Isotop (Padova)* 8(1):99-106, 1968.

8793 **GLUCOSE TOLERANCE DECREASE AND ELEVATED INSULINEMIA IN CIRRHOSIS.** *(Fr.)* Felber, J. P. (Med. Clin. U. Lausanne, Switzerland), P. Magnenat and A. Vannotti. *Schweiz Med Wschr* 97(46): 1537-1539, 1967.

8794 **SERUM LIPOLYTIC ACTIVITY AFTER FASTING IN NORMAL AND CIRRHOTIC SUBJECTS.** *(Fr.)* Schwed, P. (Med. Clin. U. Lausanne, Switzerland), M. Lavanchy, J. P. Felber and P. Magnenat. *Schweiz Med Wschr* 97(49):1649-1652, 1967.

8795 **THIAMINE EXCRETION AND TRANSKETOLASE IN CHRONIC ALCOHOLISM AND WERNICKE'S ENCEPHALOPATHY.** *(E.)* Bergener, M. (Psychiat. Clin., Dusseldorf U., Germany) and F. Gabriel-Jurgens. *German Med Monthly* 12(8):396-397, 1967.

8796 **EFFECT OF ETHANOL AND FRUCTOSE ON GALACTOSE METABOLISM IN ALCOHOLICS.** *(Sp.)* Ugarte, G. (Natl. Hlth. Svc., Santiago, Chile), T. Pereda, M. E. Pino and I. Insunza. *Rev Med Chile* 96(9):567-572, 1968.

8797 **ALCOHOL AND LIVER: A REVIEW OF THE PROBLEM.** *(It.)* Coppo, M. (Inst. Clin. Gen. Med., U. Modena, Italy) and C. de Battisti. *Fracastoro* 61(5):690-697, 1968.

8798 **CERVICAL LYMPHO-VENOUS ANASTOMOSIS FOR PORTAL HYPERTENSION IN CIRRHOSIS OF THE LIVER.** *(E.)* Schreiber, H. W. (Marien Hosp., Hamburg, Germany), W. Koch, H. V. Ackeren, T. Georgi and K. Schilling. *German Med Monthly* 13(8):361-366, 1968.

8799 **HEPATIC CIRCULATION IN SUBACUTE ALCOHOLIC HEPATITIS AND IN CIRRHOTIC HEPATITIS.** *(Fr.)* Fouquin, N. (Paris, France), S. Veyne, J. Lunel, J. Boisson, B. Halpern and G. Albot. *Rev Intern Hepat* 18(2):377-388, 1968.

8800 **THE PATHOGENESIS OF ACUTE ALCOHOLIC STEATOSIS OF THE LIVER.** *(Fr.)* Puddu, P. (Bologna, Italy), F. B. Bianchi, G. Cavalli, E. Pisi and G. Sotgiu. *Rev Intern Hepat* 18(2):355-374, 1968.

8801 **LIVER CIRRHOSIS IN THE GENERAL HOSPITAL OF AREQUIPA, PERU.** *(Sp.)* Fernán-Zegarra P., L. A. (Gen. Hosp., Arequipa, Peru), A. Chabes S., H. Rendón A. and E. Linares N. *An Fac Med Lima* 50(1): 56-67, 1967.

8802 **VARIATIONS IN GLOMERULAR FILTRATION AND IN EXCRETION OF WATER, SODIUM AND POTASSIUM IN CASES OF ASCITIC LIVER CIRRHOSIS DURING A PROLONGED TREATMENT BY CORTISONE PREPARATIONS.** *(It.)* Colucci, C. F. (Cardarelli Hosp., Naples, Italy), A. Castaldo and F. P. de Luca. *Policlinico [Prat]* 75(34):1101-1108, 1968.

8803 **RESULTS OF VENOUS DERIVATIONS IN HEMORRHAGE BY PORTAL HYPERTENSION OF CIRRHOTIC GENESIS (45 CASES).** *(Fr.)* Lataste, J. (Hotel Dieu, Paris, France) and B. Robin. *Presse Med* 76(5): 185-188, 1968.

8804 **SERUM CREATINE PHOSPHOKINASE IN CHRONIC ALCOHOLISM.** *(E.)* Nygren, A. (Maria Outpatient Svc. Alcoholism, Stockholm, Sweden). *Acta Med Scand* 182(3):383-387, 1967.

8805 **AN AUTOPSY CASE OF JUVENILE CIRRHOSIS OF THE LIVER.** *(E.)* Sasao, T. (Yamaguchi U. Sch. Med., Ube, Japan), F. Uchino and M. Umeda. *Bull Yamaguchi Med Sch* 14(4):361-369, 1967.

8806 **DISTURBANCES IN ACID-BASE EQUILIBRIUM IN CIRRHOSIS.** *(Fr.)* Beraud, C. (Saint-Andre Hosp., Bordeaux, France), J. Dangoumau, H. Bricaud, A. Liermain, A. Quinton and F. J. Traissac. *Rev Franc Etud Clin Biol* 13(5):484-496, 1968.

8807 **RADIOIOSOTOPIC STUDY OF HEMODYNAMICS IN CIRRHOSIS.** *(Sp.)* Ortiz Berrocal, J. (Puerta Hierro Clin., Madrid, Spain). *Rev Esp Enferm Apar Dig* 28(5):623-636, 1969.

8808 **HEMOCOAGULATIVE THERAPY IN LIVER CIRRHOSIS.** *(Sp.)* Garcia-Conde Bru, F. J. (Med. Fac. Valencia, Spain) and J. M. Rodrigo Gomez. *Rev Esp Enferm Apar Dig* 28(5):695-702, 1969.

8809 **PORTAL HYPERTENSION AND SPLEEN WEIGHT.** *(E.)* de Almeida, A. D. (Fac. Med. Sci., Santa Cassa São Paulo, Brazil). *Int Surg* 50(1):39-43, 1968.

8810 **GENERAL CONSIDERATIONS ON GASTROINTESTINAL BLEEDING DUE TO PORTAL HYPERTENSION.** *(Por.)* Torres, U. L. (Santa Casa 2nd Clin., São Paulo, Brazil). *Rev Ass Med Minas Gerais* 19(3): 239-242, 1968.

8811 **CHARACTERISTICS OF EXPERIMENTAL CIRRHOSIS OF THE LIVER IN RELATION TO THE ANIMALS AGE.** *(Rus.)* Verin, V. K. (Kalinin Med. Inst., USSR). *Arkh Pat* 30(7):49-53, 1968.

8812 **CRUVEILHIER-BAUMGARTEN DISEASE WITH A CIRRHOGENIC EVOLUTION IN A 3 YEAR OLD CHILD.** *(Rum.)* Burdea, M. (Inst. Med. Pharm Iasi, Romania), V. Strat and V. Mănăilă. *Rev Med Chir* 72(4):985-989, 1968.

8813 **BLEEDING FROM THE URINARY TRACT CAUSED BY PORTAL HYPERTENSION.** *(Pol.)* Zawartka, J. (Specialists Munic. Hosp., Wroclaw, Poland). *Pol Tyg Lek* 23(37):1407-1408, 1968.

8814 **ACTIVITY OF ENZYMES IN THE BLOOD SERUM AND LIVER IN EXPERIMENTAL LIVER CIRRHOSIS AT DIFFERENT STAGES OF ITS DEVELOPMENT.** *(Rus.)* Gromashevskaia, L. L. (Kiev Res. Inst. Infect. Dis., USSR), Z. P. Gette, Ia. M. Gusovskii and V. N. Demchenko. *Biull Eksp Biol Med* 66(11):42-46, 1968.

8815 **CHANGES OF SOME INDICES OF THE BLOOD COAGULATION AND ANTICOAGULATION SYSTEMS IN THE POSTOPERATIVE PERIOD IN PATIENTS WITH PORTAL HYPERTENSION.** *(Rus.)* Patsiora, M. D. (Res. Inst. Exp. Clin. Surg., Moscow, USSR) and A. K. Ieramishantsev. *Klin Med (Moskva)* 46(4):53-61, 1968.

8816 **STUDY OF PORTAL HYPERTENSION BY COMBINED UMBILICAL-PORTAL AND SUPRAHEPATIC CATHETERIZATION.** *(Fr.)* Viallet, A. (Montreal, Canada), J. G. Joly, P. Lavoie, A. Legare, J. Leduc and J. Bernier. *Rev Int Hepat* 17(8):795-802, 1967.

8817 **SERUM GLYCOPROTEINS IN ALCOHOLIC CIRRHOSIS.** *(Fr.)* Froehlich, A. L. (Biochem. Lab., Born-Bunge Found., Anvers, France). *Rev Intern Hepat* 17(6):565-571, 1967.

8818 **RESULTS OF SALIDIURETICS IN ASCITIC CIRRHOSIS.** *(Fr.)* Dive, C. *Louvain Med* 86(10):607-611, 1967.

8819 **DYSGLOBULINEMIC CIRRHOSIS AND SARCOMA. [CASE REPORT]** *(Fr.)* Dupuy, R. (Paris, France) and P. Delavierre. *Rev Intern Hepat* 17(6): 605-611, 1967.

8820 **POLYCIRRHOSIS HEMOCHROMATOSIS AND THE HEART.** *(It.)* Inferrera, C. (Inst. Anat. Pathol. Histol., U. Messina, Italy). *Riv Anat Pat Oncol* 31(4):368-388, 1967.

8821 **CHANGING TRENDS IN CIRRHOSIS AND FATTY LIVER MORTALITY.** *(E.)* Kuller, L. H. (Johns Hopkins U. Sch. Hyg. Publ. Hlth., Baltimore, Md.), K. Kramer and R. Fisher. *Amer J Public Health* 59(7):1124-1133, 1969.

8822 **"SINISTRAL" (LEFT-SIDED) EXTRAHEPATIC PORTAL HYPERTENSION. [CASE REPORT]** *(E.)* Turrill, F. L. (U. Southern California Sch. Med., Los Angeles) and W. P. Mikkelsen. *Arch Surg (Chicago)* 99(3): 365-368, 1969.

8823 **PROMINENT EYES IN LIVER DISEASE.** *(E.)* Awasthi, P. (S. N. Med. Coll., Agra, India) and V. K. Goel. *Indian Pract* 22(4):207-209, 1969.

8824 **STUDIES OF RIBOFLAVIN TETRANICOTINATE. III. EFFECT OF RIBOFLAVIN TETRANICOTINATE ON THE HEPATIC AND THE SERUM LIPOPEROXIDE LEVEL OF RATS SUFFERING FROM FATTY LIVER.** *(E.)* Kotaki, A. (Fac. Med., U. Nagoya, Japan), M. Okumura, Y. Nakagawa and K. Yagi. *J Vitamin (Kyoto)* 15(1):43-50, 1969.

### 8825 ACUTE CHOLESTASIS IN THE RAT. *(E.)*

Rodriguez Garay, E. A. (Natl. Inst. Hlth., Buenos Aires, Argentina), A. Piccaluga, V. Perez, M. Royer and J. Listrani. *Acta Hepatosplen (Stuttgart)* 16(4):221-230, 1969.

Intrahepatic cholestasis produced by oral administration of alpha naphthylisothiocyanate (ANIT) was compared with the extrahepatic cholestasis induced by surgical occlusion of the bile duct. In another group of rats the effect of the combination of these procedures was studied. A fourth group of non-treated rats were used as controls. Before sacrifice some rats were injected with a single dose of BSP. Urine and feces were collected from all the animals on the day before killing, and the livers were removed immediately after. Determinations of serum alkaline phosphatase, cholesterol, total lipids, SGOT, and SGPT showed no differences among treated animals in the 3 groups. On the first day after treatment, an increase of urinary bilirubin in ligated rats and of fecal bilirubin in ANIT-treated rats was seen. Diminished concentration of bilirubin in the liver and decreased uptake of BSP by the liver were also observed in ANIT-treated rats. Azopigment A was present on chromatograms of diazotized extracts of stool samples in rats given ANIT, in the absence of bile flow. A direct transport of unconjugated bilirubin from blood across the intestinal wall is thus suggested. In the group with combined ANIT and surgical treatment, this transport was further increased. Direct-reacting bilirubin was elevated in both the serum and the livers in ANIT-treated rats. Therefore, the transport of bilirubin across the intestinal wall may be due to a diminished capacity of the liver to take up bilirubin with or without a direct effect on permeability for unconjugated bilirubin.

### 8826 OPERATIVE CHOLANGIOGRAPHY. *(E.)*

Jolly, P. C. (Mason Clin., Seattle, Wash.), J. W. Baker, J. H. Walker and H. M. Schmidt. *Northwest Med* 68(7):639-643, 1969.

All patients who required removal of the gallbladder for benign disease during the 11-yr period (1955-1966) were studied: 1363 cholecystectomies were performed for chronic cholecystitis and 97 for acute cholecystitis; 671 patients had cystic duct cholangiograms and 226 had completion cholangiograms performed after the common duct exploration. Of the total 1460 patients follow-up data were obtained for 73% from 1-13 yr after operation. Information was available for an additional 7% for 2-12 months after operation but the information for 20% was inadequate. The accuracy of operative cholangiography was evaluated by comparing the immediate benefits of the procedure and the late clinical status of the patients. The cystic duct cholangiogram proved to be the most accurate method of evaluating the status of the common duct, superior to either clinical judgment or open instrumentation. On this basis, choledochotomy was avoided in 175 patients with strong clinical indications for exploration. When the surgeon's clinical opinion that no common duct stones were present was reinforced by a negative cholangiogram, late choledocholithiasis was reduced to 0.3%. Routine cholangiography detected unsuspected common duct stones in 6.3% of 380 patients for whom there was no clinical suspicion of common duct disease. The cholangiogram was quite useful in avoiding unnecessary choledochotomy in the patient with acute cholecystitis. The completion cholangiogram after common duct exploration was valuable in avoiding the overlooked stone.

### 8827 OPERATIVE INJURIES OF THE BILE DUCTS. *(E.)*

Kune, G. A. (Royal Melbourne Hosp., Australia), K. J. Hardy, G. Brown and G. McKenzie. *Med J Aust* 2(5):233-236, 1969.

The operations responsible for 50 bile duct injuries were cholecystectomy (40), exploration of the common bile duct (4), choledochoduodenostomy (1), and polya gastrectomy (5). The precise cause of the injury was frequently uncertain: incomplete demonstration of the anatomy of the bile duct, the presence of an unusual arrangement of ducts, unexpected hemorrhage and "fundus-down" cholecystectomy were present in this series. In only 3 was the injury recognized at operation: in 26 it was observed in the early postoperative period (obstructive jaundice 6, biliary fistula 15, and drainage of biliary collection 5 and in 21 it was recognized only some months after the operation (cholangitis 6, and obstructive jaundice 5). Surgical reconstruction in the 50 patients lead to good results in 30, poor in 11, with 4 deaths and 5 lost to or with too short a follow-up.

### 8828 LIVER BIOPSY IN THE DIAGNOSIS OF INFANTILE OBSTRUCTIVE JAUNDICE. *(E.)*

Brough, A. J. (Albert Einstein Coll. Med., New York, N. Y.) and J. Bernstein. *Pediatrics* 43(4 pt. 1):519-526, 1969.

Slides of 97 liver biopsies performed in 87 infants with obstructive jaundice due to neonatal hepatitis and extrahepatic biliary duct atresia were reviewed in order to evaluate the histopathologic criteria for the diagnosis. Of the 29 patients diagnosed as having hepatitis, 2 were autopsied, 3 died and no autopsy was performed, 19 were living and well and 5 were lost to followup. Of the 58 with atresia, 20 were autopsied, 16 died and no autopsy was performed, 5 were living and well and 17 were lost to followup. Biopsies were interpreted without clinical information and were designated as either hepatitis or biliary atresia. Adequate followup was available in 64 to establish the validity of the diagnosis. Twenty-three patients diagnosed as having hepatitis either recovered or had demonstration of the patency of the extrahepatic bile ducts. Thirty-nine of 41 patients designated as having atresia were shown to have an obstructive lesion. Of these, 36 were, on the basis of the clinical course, surgical findings, and cholangiographic data, considered to be examples of extrahepatic bile duct atresia. Three patients had liver biopsy changes identical to those of atresia: 2 choledochal cysts and 1 obstructive plug of bile in the common bile duct. Two other patients subsequently became anicteric. Diagnostic error, which was based on histopathologic interpretation of both needle and open liver biopsies, was 3.5%. While 80% of the biopsies were obtained at laparotomy, the application of these histopathologic criteria should result in a similarly high degree of accuracy in interpretation of percutaneous needle biopsies.

### 8829 OBSTRUCTIVE JAUNDICE AND CARCINOMA OF THE GALLBLADDER. *(E.)*

Yadav, R. V. S

(All-India Inst. Med. Sci., New Delhi), I. K. Dhawan and B. N. Balkrishna Rao. *Int Surg* 52(3):240-244, 1969.

Sixty-three consecutive cases of obstructive jaundice were seen between 1962 and early 1968. Twenty-five (40%) had gallbladder cancer, 24 (38%) calculus in the common bile duct, and only 4 (6.3%), in contrast to Western countries, carcinoma of the head of the pancreas. During this same period there were 15 patients with carcinoma of the gallbladder but no jaundice. Thus there were 40 cases of gallbladder cancer, 9 of the 11 males and 16 of 29 females had jaundice. Most patients with gallbladder cancer and with obstructive jaundice had a very short history of jaundice (but quite deep when first seen), and the onset of jaundice removed all chances of cure in the present state of knowledge. It also increases the risks of laparotomy considerably. In patients without jaundice a constant pain in the right hypochondrium of varying severity was the most common symptom. Adenocarcinoma was the usual histologic type.

8830 **UMBILICAL HERNIA AND GALLBLADDER DISEASE.** *(E.)* Bryant, W. M. (U. Kentucky Med. Ctr., Lexington) and W. O. Griffen Jr. *Amer J Surg* 117(5):653-655, 1969.

During the period from July 1962 through June 1967, 36 patients with umbilical hernia were examined for gallbladder disease. The 2 men in this group had no evidence of disease while 8 of the 34 women had gallbladder disease documented by oral cholecystography, operative findings, or history of previous cholecystectomy. An additional 14 women with umbilical hernia were studied for gallbladder disease during the period from July 1967 through December 1967. Cholelithiasis or nonfunctioning gallbladder was found in 13 of these patients. Of the 21 patients (average age was 52) with combined umbilical hernia and gallbladder disease, 16 had borne children, 19 were described as "obese", and 6 had diabetes mellitus. Umbilical hernia may provide an immediately available clue to the presence of associated gallbladder disease, occasionally in the absence of biliary tract symptoms.

8831 **GALLSTONE OF THE COMMON BILE DUCT.** *(It.)* Morone, C. (Inst. Path., U. Pavia, Italy) and T. F. Lago. *Omnia Med* 45(1):85-135, 1967.

After reviewing the frequency, etiology, localization and preoperative diagnosis of gallstones of the common bile duct, 53 cases, hospitalized between 1964 and 1966; are reported. They were 17% of the surgical operations performed for diseases of the biliary duct. The 53 operations were: 6 cholecystectomies associated with choledochotomy and drainage of Kehr; 34 colecystectomies associated with transduodenal sphincterotomy; 8 colecystectomies associated with choledochotomy, transduodenal sphincterotomy and drainage of Kehr; 2 choledochoduodenostomies. Three other patients with cholecystectomies were submitted to transduodenal sphincterotomy, associated with choledochotomy in 1 case. The complications were: 1 folding of the Kehr's tube in a patient with a choledochotomy, and slight jaundice in 2 patients with transduodenal sphincterotomies. All patients with a sphincterotomy recovered between the 10th and 16th day.

8832 **CLINICAL SIGNIFICANCE OF WHITE BILE IN THE BILIARY TREE.** *(E.)* Elmslie, R. G. (Prince Henry Hosp., Sydney, Australia), M. E. C. Thorpe, J. V. L. Colman, C. R. Boughton, G. R. Pritchard and R. J. Hoy. *Gut* 10(7):530-533, 1969.

Observations were made in 9 patients who were operated on for obstructive jaundice and who were found to have white bile in the biliary tree. Biochemical studies showed that fluid was free of bilirubin and bile salts and the major cation composition resembled that found in serum. White bile is not necessarily infected bile. White bile can be found in both benign and malignant forms of jaundice; the gallbladder, although it may share in general dilatation of the biliary tree, may be used for decompression. White bile alone does not indicate a grave immediate prognosis; surgery should be appropriate to the patient's general condition and to the nature of the obstruction. When white bile is found the function of the liver as measured by its ability to clear bilirubin after operation is not greatly impaired.

8833 **DIET AND CHOLESTEROL GALLSTONES.** *(E.)* Sarles, H. (Unite de Recherches de Pathologie Digestive, Marseille, France), C. Chabert, Y. Pommeau, E. Save, H. Mouveth and A. Gerolami. *Amer J Dig Dis* 14(8): 531-537, 1969.

A group of 101 female patients (age 20-55 yr) with gallstones were compared with 101 age-matched controls. The patients with gallstones had a statistically significant ($p = 0.0005$) increased intake of calories, irrespective of dietary composition. Psychological stress was more frequent in patients with gallstones ($p < 0.001$), but the following were not significantly different in the 2 groups; body weight; working conditions, and physical exercise. Stress might act in at least 2 ways: by increasing the appetite and thus the caloric intake or by augmenting the tone of the sphincter of Oddi and producing stasis.

8834 **INCIDENCE OF GALLBLADDER DISEASE AFTER VAGOTOMY.** *(E.)* Clave, R. A. (Dept. Surg., U. Southern California, Los Angeles) and M. R. Gaspar. *Amer J Surg* 118(2):169-176, 1969.

Of 116 patients who had truncal vagotomy and pyloroplasty for benign peptic ulceration, 92 consented to have routine oral cholecystography in the postoperative period. Positive evidence of gallbladder disease was found in 23.5% of patients who had a normal cholecystogram and a palpably normal gallbladder before vagotomy and pyloroplasty. In patients 30-50 yr of age gallstones developed in 27.8% after vagotomy, an unexpectedly high rate for this age group. The average age of those with gallbladder disease was 46 yr, almost 2 yr younger than the average age in the entire series. The coincidence of advancing age does not appear to be a significant factor in the development of gallstones after vagotomy. There were 10 positive findings in female patients, 11 in male; compared with the usual 2:1 ratio of females to males in gallbladder disease. The findings indicate that if gallstones are going to form after vagotomy and pyloroplasty they probably develop early, within a few years, in the postoperative period. Maximal gallbladder contraction measured after a fatty meal was noted to be normal after vagotomy, almost without exception. Increase in the fasting volume of the gallbladder in the first 2 years after vagotomy was confirmed. This series of postvagotomy patients strongly suggests a high incidence of early biliary calculus formation after surgery. A choleretic is being added to the postoperative regimen.

8835 CARCINOMA OF THE GALLBLADDER. REPORT OF 45 CASES. *(E.)* Andrews, E. C. (U. Texas Med. Sch. San Antonio), D. E. Bennett and R. B. Arhelger. *Southern Med J* 62(5):573-578, 1969.

Forty-five patients with carcinoma of the gallbladder were seen during 8 yr. Females predominated 2.7 to 1; ages ranged from 30-89 yr, averaging 65 yr. The 43 patients with unsuspected carcinoma of the gallbladder were collected from a series of 1760 cholecystectomies, an incidence of 2.4%. The autopsy incidence of carcinoma of the gallbladder during the period was 0.6%. All cases of carcinoma were associated with acute and/or chronic cholecystitis, and 82% with cholelithiasis. Forty-three of these patients underwent laparotomy for suspected benign disease of the gallbladder and biliary tree, and an unsuspected carcinoma was found at the time of operation. At the time of the initial operation, the tumor had already spread beyond the anatomic confines of the gallbladder in 40 cases; 1 tumor had invaded to the inner muscular layer and 2 tumors were classified as carcinoma *in situ*. Only 1 patient underwent a radical surgical procedure for cure (right hepatectomy), but died 9 months later of cancer. Thirty-eight were dead within 6 months, and 2 more died by 8 months. There are 4 short-term survivors, from 12 to 22 months following the initial operation.

8836 REMOVAL OF RETAINED BILE-DUCT CALCULUS WITHOUT OPERATION. A CASE REPORT. *(E.)* Magarey, C. J. (King's Coll. Hosp., London, England). *Brit J Surg* 56(4):312-314, 1969.

8837 A STUDY OF CHOLECYSTECTOMIES IN A SMALL COMMUNITY HOSPITAL. *(E.)* Berardi, R. S. (McDowell Regional Hosp., Ky.). *J Kentucky Med Ass* 67(5):420-421, 1969.

8838 GALLSTONES IN INTESTINAL OBSTRUCTIONS. *(It.)* Siciliani, M. ("A. Cardarelli" Hosp. United Hosp., Naples, Italy) and A. Scioli. *Rass Int Clin Ter* 47(17):943-958, 1967.

8839 EVALUATION OF THE EFFICIENCY OF COMPLEX THERAPY OF CHILDREN WITH DISEASES OF THE BILIARY TRACT. *(Rus.)* Sheliapin, V. V. (Inst. Pediat., Moscow, USSR). *Vop Okhr Materin Dets* 12(10):29-32, 1967.

8840 THE DIAGNOSIS AND TREATMENT OF GALLBLADDER DISEASES IN CHILDREN IN POLYCLINICAL CONDITIONS. *(Rus.)* Borovkova, L. A. (Munic. Hosp. No. 15, Voronezh, USSR). *Vop Okhr Materin Dets* 12(8):88-89, 1967.

8841 ACUTE GANGRENOUS CHOLECYSTITIS COMPLICATED BY BILE PERITONITIS IN A 7 MONTH OLD GIRL. *(Rus.)* Bilich, G. L. (Karaganda Regional Pediat. Surg. Ctr., USSR). *Vop Okhr Materin Dets* 12(10):85-86, 1967.

8842 EXPERIMENTAL SPLICE OF SKIN AND MUCOUS MEMBRANE OF THE COMMON BILE DUCT AND GALLBLADDER. *(Rus.)* Lezhava, A. S. (Tiflis, USSR). *Arkh Anat* 53(12):33-37, 1967.

8843 EXTRASECRETORY FUNCTION OF THE PANCREAS DURING GALLBLADDER AND BILE DUCT DISEASES IN CHILDREN. *(Rus.)* Plotnikova, N. G. (Crimean Med. Inst., Simferopol, USSR). *Vop Okhr Materin Dets* 12(12):68, 1967.

8844 NON-CALCULOUS GANGRENOUS CHOLECYSTITIS. [CASE REPORT] *(Pol.)* Krynicki M. (Lodz, Poland). *Wiad Lek* 20(14):1373-1374, 1967.

8845 DISEASES OF THE BILIARY TRACT AND THEIR SURGICAL INDICATIONS IN THE ELDERLY. *(It.)* Nocentini, P. (Inst. Gen. Clin. Surg., U. Florence), Italy) and G. Scrivere. *Arch Atti Soc Ital Chir* 1(Part 2):911-976, 1967.

8846 PROPHYLAXIS AND TREATMENT OF HEPATIC–RENAL INSUFFICIENCIES DURIN OBSTRUCTIVE JAUNDICE. *(Rus.)* Vitlin, V. I. (Leningrac Sanit. Hyg., Med. Inst., USSR). *Klin Khir (Kiev)* (2):20-25, 1968.

8847 CHOLELITHIASIS AND CHOLECYSTITIS IN CHILDHOOD. CASE REPORTS OF TWIN SISTERS AND REVIEW OF THE LITERATURE. *(E.)* Brown, H. W. (Huron Road Hosp., Cleveland, Ohio) and J. O. Ximenes. *Int Surg* 49(5):544-550, 1968.

8848 CHRONIC CHOLECYSTITIS AND CHOLELITHIASIS IN INDIA. *(E.)* Prakash, A. (All-In Inst. Med. Sci., New Delhi). *Int Surg* 49(1):79-85, 1968.

8849 NEW (?) GALLBLADDER. [CASE REPORT] *(E.)* Dietz, M. W. (Springfield, Mo.). *Missouri Med* 65(1):40-42, 1968.

8850 FURTHER STUDIES ON THE FUNCTION OF THE GALLBLADDER. *(Pol.)* Grabowski, (2nd Surg. Clin., Warsaw, Poland). *Pol Tyg Lek* 23(42):1596 1598, 1968.

8851 SPONTANEOUS INTERNAL BILIARY FISTUI AND THE POSSIBILITY OF THEIR PREOPER TIVE DIAGNOSIS. *(Pol.)* Pronaszko-Rzepecka, I. (Munic. Hosp. No. 6, Warsaw, Poland), J. Szymanowski and K. Wermenski. *Pol Tyg Lek* 23(30):1135-1136, 1968.

8552 PROBLEMS OF CHOLECYSTOPATHY IN CHILDREN. *(Pol.)* Oleszkiewicz, J. (Child. Hosp., Zywiec, Poland), I. Pawluszkiewicz, W. Nowak, J. Karczewski and J. Kwiatkowski. *Przegl Lek* 24(7):576-579, 1968.

8853 CHOLEDOCHODUODENOSTOMY. METHOD AND TECHNIQUE. *(Sp.)* Garriz, R. A. (Rawson Hosp., Buenos Aires, Argentina), H. Santangelo and A. F. Valoni. *Prensa Med Argent* 55(38):1816-1819, 1968.

8854 THE FREQUENCY AND PROGNOSIS FOR CHOLELITHIASIS. *(Fr.)* Jacobs, E. (Saint-Pierre U. Hosp., Brussels, Belgium), O. Thys and C. Cauchie. *Acta Gastroent Belg* 31(8/9):543-560, 1968.

8855 CELIAC-MESENTERY ARTERIOGRAPHY IN A CASE OF CYSTIC DILATATION OF THE COMMON BILE DUCT IN AN ADULT. *(Fr.)* Lemaitre, G. (C. H. U., Lille, France), C. L'Hermine, C. Gautier-Benoit and J. C. Paris. *Ann Radiol (Paris)* 11(11/12):834-836, 1968.

8856 THE EFFECT OF SURGICAL EXPLORATION OF THE COMMON DUCT ON THE PANCREAS. *(It.)* Fortunelli, D. (Clin. Gen. Surg., U. Perugia, Italy), F. Gamuzza and A. Bartoli. *Acta Chir Ital* 24(3):277-295, 1968.

8857 A CASE OF SURGICAL INJURY OF THE COMMON BILE DUCT. *(Fr.)* Riveaux, R. (Guebwiller, Germany). *Mem Acad Chir* 94(12/13):386-387, 1968.

8858 ROUTINE OPERATIVE CHOLANGIOGRAPHY. *(E.)* Allen, K. L. (San Francisco Gen. Hosp., Calif.). *Amer J Surg* 118(4):573-576, 1969.

8859 PATHOGENESIS AND CLINICAL PICTURE OF ACUTE ENZYMATIC CHOLECYSTITIS. *(Rus.)* Shaak, T. V. (Leningrad Inst. Postgrad. Med., USSR) and A. A. Zavadskii. *Vestn Khir Grekov* 102(2):17-22, 1969.

8860 SOME ENZYME AND FUNCTION TESTS IN PATIENTS WITH CHRONIC CHOLECYSTITIS PRIOR TO AND AFTER CHOLECYSTECTOMY. *(Rus.)* Diachina, Ie. G. (Kharkov Sci. Res. Inst. Gen. Surg., USSR). *Vestn Khir Grekov* 102(2):22-25, 1969.

8861 CHOLECYSTITIS AND CHOLELITHIASIS IN YOUNGER AGE GROUPS. *(E.)* Brownrigg, G. M. (St. Clare's Mercy Hosp., St. John's, Canada). *Canad Med Ass J* 101(5):291-292, 1969.

8862 LAPAROSCOPY AND PERCUTANEOUS TRANSHEPATIC CHOLANGIOGRAPHY IN DIFFERENTIAL DIAGNOSIS OF JAUNDICE. *(Sp.)* Schultz, H. (Reg. Concepcion Clin. Hosp., Chile), G. Kuster, F. Biel, E. Bellollio and A. Aguayo. *Hosp Vina Del Mar* 24(3/4):53-60, 1968.

8863 TRANSAMINASES IN EXPERIMENTAL BILIARY TRACT OBSTRUCTION. *(Sp.)* Abraham, N. F. (Dept. Technical Surg., Natl. U. Cordoba, Argentina), N. E. Perez Roura, C. A. Sosa Gallardo and N. Cavagliato. *Rev Argent Cir* 15(5/6):159-161, 1968.

8864 POST-OPERATIVE BILE DUCT REPAIR. *(E.)* Lytle, W. J. (Royal Infirm., Sheffield, England). *J Irish Med Ass* 61(378):435-436, 1968.

8865 CONCOMITANT BILIARY LITHIASIS AND PEPTIC ULCER. DIAGNOSTIC AND THERAPEUTIC ASPECTS. *(It.)* Halabi, M. (Fac. Med. Sci., Natl. U. Cordoba, Argentina) and M. Sezin. *Prensa Med Argent* 55(39):1873-1875, 1968.

8866 PERCUTANEOUS TRANSHEPATIC CHOLANGIOGRAPHY. *(Sp.)* Salvidea, J. C. (Rawson Hosp., Buenos Aires, Argentina), J. M. Almanza and R. A. Garriz. *Prensa Med Argent* 55(38):1820-1823, 1968.

8867 DIET OF CHILDREN SUFFERING FROM CHOLECYSTITIS. *(Rus.)* Nevskaia, T. S. (Inst. Nutrit., Moscow, USSR), L. V. Chistova, G. V. Zubrilina, N. N. Kulikovskaia, Ie. D. Pinzur and G. S. Kisteneva. *Vop Okhr Materin Dets* 13(1):74-77, 1968.

8868 SPHINCTEROTOMY IN BILIARY SURGERY. *(E.)* Niederle, B. (Dept. Surg., Prague U., Czechoslovakia). *J Roy Coll Surg Edinb* 12(5):330-336, 1968.

8869 FOUR CASES OF ANOMALIES OF EXTRAHEPATIC BILE DUCTS. *(It.)* Gigli, U. (N. Giannettasio Munic. Hosp., Rossano, Italy) and C. Tocci. *Clinica (Bologna)* 27(4):253-264, 1968.

8870 HISTORY OF THE DEVELOPMENT AND PRESENT STATE OF BILIARY TRACT SURGERY IN THE UKRAINIAN SSR. *(Rus.)* Karavanov, G. G. (Lvov Med. Inst., USSR), O. V. Fil'ts and G. L. Orel. *Klin Khir (Kiev)* (9):8-15, 1967.

8871 ACUTE CHOLECYSTITIS AS A COMPLICATION OF SURGERY ON ORGANS OF THE ABDOMINAL CAVITY. *(Rus.)* Karavanov, A. G. (Kiev Inst. Transfusion, USSR), A. L. Pkhakadze, P. F. Demidiuk and A. I. Gurin. *Klin Khir (Kiev)* (9):27-30, 1967.

8872 SURGICAL TREATMENT OF CHOLECYSTITIS ACCORDING TO DATA FROM 6 YEARS OF STUDIES. *(Rus.)* Parneta, M. P. *Klin Khir (Kiev)* (9):48-49, 1967.

8873 INVAGINATIONAL ANASTOMOSIS OF BILE DUCTS WITH THE GASTROINTESTINAL TRACT. *(Rus.)* Vitebskii, Ia. D. (Kurgansk Regional Hosp., USSR). *Klin Khir (Kiev)* (9):40-45, 1967.

8874 GLUCOCORTICOID AND ANDROGEN FUNCTION OF ADRENAL GLANDS IN PATIENTS WITH ACUTE CHOLECYSTITIS BEFORE AND AFTER SURGICAL TREATMENT. *(Rus.)* Skripnichenko, D. F. (Kiev Inst. Postgrad Med., USSR) and V. I. Mamchich. *Klin Khir (Kiev)* (9):54-59, 1967.

8875 THE SO-CALLED "NEUROMATOSIS" OF THE GALLBLADDER. *(It.)* Cosmacini, G. (Gen. Hosp., Milan, Italy), F. Costa and A. Limentani. *Radiol Med (Torino)* 53(11):1108-1114, 1967.

8876 GALLBLADDER DISEASE. [CASE REPORT] *(It.)* Rodolico, R. (Inst. Radiol. Phys. Therap., U. Pavia, Italy) and C. del Favero. *Radiol Med (Torino)* 53(11):1095-1108, 1967.

8877 BILIARY TRACT DISEASE AMONG THE NAVAJOS. *(E.)* Brown, J. E. (Tulane U., New Orleans, La.) and C. Christensen. *JAMA* 202(11):1050-1052, 1967.

8878 ISOLATION AND STUDY OF ABNORMAL SERUM LIPOPROTEINS IN OBSTRUCTIVE JAUNDICE AFTER FLOCCULATION BY POLYVINYLPYRROLIDONE. *(Fr.)* Burstein, M. (Saint-Antoine Hosp, Paris, France) and J. Caroli. *Rev Franc Etud Clin Biol* 13(4): 387-392, 1968.

8879 FLOCCULATION OF ABNORMAL SERUM LIPOPROTEINS BY POLYVINYLPYRROLIDONE IN OBSTRUCTIVE JAUNDICE. *(Fr.)* Burstein, M. (Saint-Antoine Hosp., Paris, France) and J. Caroli. *Rev Franc Etud Clin Biol* 13(4):404-405, 1968.

8880 INTRAOPERATIVE CHOLANGIOGRAPHY IN THE STUDY OF ABNORMAL CONDITIONS OF THE TERMINAL PART OF THE COMMON BILE DUCT. (A SERIES OF 101 CASES). *(It.)* Tettoni, E. (Dept. Radiol., U. Turin, Italy) A. Bologna and P. Trapani. *Minerva Radiol* 13(5):262-273, 1968.

8881 LATE RESULTS OF CHOLEDOCHODUODENOSTOMY. *(Ger.)* Samsamshchariat, H. (Canton Hosp., Winterthur, Switzerland). *Helv Chir Acta* 34(5):478-486, 1967.

8882 ICONOGRAPHY OF CHOLECYSTOSIS. [CASE REPORT] *(Fr.)* Lura, A. (Radiol. Inst. U. Ferrara, Italy) and G. P. Alberti. *Schweiz Med Wschr* 97(34):1122-1126, 1967.

8883 COAGULOGRAM AND THROMBOELASTOGRAM IN PATIENTS WITH ACUTE CHOLECYSTITIS AND THEIR CHANGES AFTER CHOLECYSTECTOMY. *(Rus.)* Postolov, M. P. (Tashkent Med. Inst., USSR) and T. U. Alimov. *Klin Khir (Kiev)* (9):50-54, 1967.

8884 PORTAL AND SPLENIC VEIN CALCINOSIS, A COMPLICATION OF CHOLELITHIASIS. *(Rus.)* Ogii, P. Ie. (Ternopol Med. Inst., USSR) and R. F. Tkachuk. *Klin Khir (Kiev)* (9):77-79, 1967.

8885 NON-PERFORATING GALLBLADDER PERITONITIS. [CASE REPORT] *(Rus.)* Duberman, L. B. (Sokol Munic. Hosp., Vologod Region, USSR). *Klin Khir (Kiev)* (9):84, 1967.

8886 CORALLIFORM STONES OF THE BILE DUCTS. [CASE REPORT] *(Rus.)* Boris, A. I. (Minsk Med. Inst., USSR) and I. F. Borodin. *Klin Khir (Kiev)* (9):85, 1967.

8887 SURGICAL ANATOMY OF EXTRAHEPATIC BILE DUCTS. *(Rus.)* Iupatov, S. I. (Cent. Inst. Postgrad. Med., Moscow, USSR). *Klin Khir (Kiev)* (9):35-39, 1967.

8888 THE EFFECTIVENESS OF CHOLELITHIASIS TREATMENT AT THE TRUSKAVETS RESORT. *(Rus.)* Sobol', A. I. (Truskavets Munic. Hosp. USSR). *Klin Khir (Kiev)* (9):46-47, 1967.

8889 LYMPHOADENOPATHY OF THE BRILL-SYMMERS TYPE IN THE EXTRAHEPATIC BILE DUCTS. *(It.)* de Bellis, E. (A. Cardarelli Hosp., Naples, Italy) and R. Pusateri. *Rass Int Clin Ter* 47(20):1123-1130, 1967.

See also: 8136,8232,8602,8634,8684,8701

## GENERAL

**8890 NECROTISING ENTEROCOLITIS IN THE NEWBORN.** *(E.)* Wagget, J. (Dept. Surg. U. Newcastle upon Tyne, England) and J. E. S. Scott. *Z Kinderchir* 7(2):242-247, 1969.

The clinical and radiological features of 24 cases (mean days of age at operation 10.2) of neonatal necrotising enterocolitis are described. Their management, the pathological features and the results of treatment are discussed. The mortality rate was 50%. The poorer the infant's condition on admission and the greater its age, the less likely it was to survive. There are several predisposing factors (Hirschsprung's disease, exchange transfusions, low birth weight, feeding mismanagement) which lead to increasing inspissation of bowel content, constipation and obstruction. Bacterial invasion of the bowel wall then occurs.

**8891 HAEMMORHAGIC MUCOSAL NECROSIS OF THE GASTROINTESTINAL TRACT WITHOUT VASCULAR OCCLUSION.** *(E.)* Sørensen, F. H. (Arhus Kommune Hosp., Denmark) and M. Vetner. *Acta Chir Scand* 135(5):439-448, 1969.

Sixteen cases (9 female, 7 male, average age 68 yr) of hemorrhagic necrosis of the mucosa of the gastrointestinal tract without vascular occlusion are presented; most cases were seen in elderly patients with chronic heart disease. Fifteen cases had a fatal course due to irreversible shock which generally was preceded by intestinal symptoms. The most common clinical diagnosis was mesenteric thrombosis. In those cases which ended fatally, the macroscopic and microscopic changes involved a large portion of the intestine, several cases from cardia to anus, and appeared as small, scattered, often numerous mucosal erosions with hemorrhage in a hyperemic and edematous mucosa. Microscopically, necrosis of the mucosa, interstitial bleeding and considerable hyperemia and edema in the submucosa were seen. The pathological-anatomical changes may occur in the irreversible shock phase, while the preceding abdominal symptoms may be caused by ischemic anoxia in the splanchnic region.

**8892 INTRAVENOUSLY GIVEN ETHACRYNIC ACID AND GASTROINTESTINAL BLEEDING. A FINDING RESULTING FROM COMPREHENSIVE DRUG SURVEILLANCE.** *(E.)* Slone, D. (Tufts U. Sch. Med., Boston, Mass.), H. Jick, G. P. Lewis, S. Shapiro and O. Miettinen. *JAMA* 209(11):1668-1671, 1969.

During routine computer monitoring of data obtained in a drug-surveillance program, an association ($P < 0.0001$) between the administration of ethacrynic acid and the occurrence of gastrointestinal bleeding was observed. A detailed analysis was therefore undertaken wherein diagnosis, age, sex, blood urea nitrogen levels, the presence or absence of heparin sodium therapy, and the severity of illness were controlled. Even after these adjustments, the frequency of gastrointestinal bleeding among 157 patients receiving ethacrynic acid was higher than in those who received furosemide (67 patients), meralluride sodium and/or hydrochlorothiazide and/or chlorothiazide orally (189 patients), or in 1189 patients who received none of these diuretics ($P < 0.02$). The difference noted with ethacrynic acid was confined to the subgroup of patients who received the drug i.v.

**8893 INTRA-ABDOMINAL ADHESIONS AS A MANIFESTATION OF A FIBROTIC DIATHESIS.** *(E.)* Ashby, E. C. (Westminster Hosp., London, England). *Brit Med J* 3(5666):350-352, 1969.

In 81 patients (29 men, 52 women) with fibrous intra-abdominal adhesions confirmed at surgery there was a high incidence of other lesions in which there was a substantial element of fibrosis. These included chronic peptic ulceration (25) ovarian cysts (12) fibrous stenotic lesions (13) and thickened scars (18 of 23 evaluated). In some patients a generalized fibrotic tendency as well as local factors may play a part in the pathogenesis of adhesions.

**8894 EVALUATION OF PERITONEAL LAVAGE THERAPY FOR PERITONITIS.** *(E.)* Glover, J. L. (Indiana U. Med. Ctr., Indianapolis), P. Atkins and R. E. Lempke. *J Surg Res* 9(9):531-534, 1969.

In male and female mongrel dogs (12-16 kg), ligation of the appendix, division of its blood supply, and the administration of castor oil produced peritonitis uniformly, with death occurring in 75% of the untreated animals. While administration of normal saline solution i.v. seemed to improve survival, antibiotic administration (kanamycin 15 mg/kg daily for 4 days) or appendectomy, both in conjunction with saline infusion, produced no more survivors than untreated controls. A technique of continuous lavage of the peritoneal cavity with isotonic salt solution (Inpersol) was used as the sole treatment in 1 group of dogs. It was ineffective in improving survival but partially effective in removing bacteria from the peritoneal cavity.

**8895 NONMALIGNANT GASTROINTESTINAL SHORTCIRCUIT. (GASTROJEJUNOCOLIC FISTULA AND GASTROILEOSTOMY).** *(E.)* Sørensen, B. M. (Munic. Hosp., Copenhagen, Denmark). *Acta Chir Scand* (Suppl. 396):67-70, 1969.

Twenty-four patients with gastrojejunocolic fistula and 2 patients with inadvertent gastroileostomy are presented. In 20 cases gastrojejunocolic fistula followed gastroenterostomy and in 4 partial gastrectomy (Billroth II) for duodenal ulcer. The main symptoms were persistent diarrhea and emaciating weight loss. The onset in patients with gastroileostomy was immediately after operation. Symptoms from gastrojejunocolic fistula appeared 2-30 yr after the primary operation and in about one half were preceded by ulcer symptoms. Patients with gastrojejunocolic fistula were often admitted to hospital with symptoms resembling intestinal obstruction with diffuse abdominal colic. X-ray frequently showed collections of gas in the small intestine. However, these symptoms decreased on cessation of food-intake. The diagnosis of gastrojejunocolic fistula was made by barium enema. Contrast seldom and sparsely passed from the stomach to the colon in upper gastrointestinal series. All the patients were treated by a one-step operation including partial gastrectomy and closure of the colonic fistula. Five of the 26 patients died from pulmonary complications. The mortality rate might have been less if some patients had been operated on in 2 stages with an ascending colostomy as the first step.

## GENERAL

8896 TECHNICAL AND CLINICAL CONSIDERATIONS OF GASTROINTESTINAL RADIOLOGY IN THE AGED. *(Fr.)* Buchet, R. (Ivry Hosp., France) and J. Porot. *J Radiol Electr* 50(6/7):527-531, 1969.

In the pathology of aging digestive symptoms are the main indications for radiological studies. As this examination presents some problems connected with the advanced age of the patients, administering a nontoxic tranquilizer may remove psychological barriers and apprehension and prepare the patient. Because it is impossible for the aged to assume the same bodily positions as the person in middle life, it is necessary to have an apparatus itself capable of easy, flexible orientation. A review of results of 407 explorations of the alimentary tract showed 79 hemorrhagic syndromes (34 anemias, 23 melena, 17 hematemesis, 5 rectal hemorrhages). Dysphagia and the hemorrhagic syndrome may be valuable as indications for radiological studies.

8897 GASTRIC TAMPONADE AS AN ADJUNCT TO COOLING FOR MASSIVE UPPER GASTROINTESTINAL TRACT HEMORRHAGE: A PRELIMINARY REPORT OF A NEW TECHNIQUE. *(E.)* Edlich, R. F. (Dept. Surg., U. Minnesota, Minneapolis), R. L. Goodale, A. J. Lande, J. E. Kuphal and O. H. Wangensteen. *Surgery* 66(4):669-675, 1969.

Most deaths from peptic ulcer occur in patients with massive hemorrhage. Of the 66 patients with massive stomach bleeding treated during 1958-1967, hemorrhage was stopped by gastric balloon hypothermia in only 58% of the cases. Using cooling and tamponade concomitantly with a balloon conforming to the shape of the human stomach in 13 patients with massive hemorrhage indicates that this device improves considerably the effectiveness of hypothermia in the control of massive gastric bleeding. Bleeding was controlled in 11 of these patients. The technique, using the inexpensive 4 lumen gastric hypothermia tamponade balloon can be performed safely by any house officer. Problems of gastric and esophageal rupture, overdistension of the stomach, and rupture of the balloon with sequestration of toxic fluid (alcohol) into the gastric lumen have been obviated by the use of a low pressure gravity inflow machine which utilizes ice and water as the refrigerant and coolant. The continual threat of aspiration pneumonia has been obviated by the balloon tube assembly which provides continuous esophageal aspiration. Use of this device results in control of gastric hemorrhage in a number of life-threatening situations in which early emergency operation suggests an unwarranted risk.

8898 CLINICAL TREATMENT OF INTESTINAL OBSTRUCTIONS CAUSED BY ASCARIS. *(Por.)* Araújo, B. S. (Federal U. Rio de Janeiro, Brazil) and F. J. Ginefra. *Bol Inst Puericult (Rio)* 24(1):36-42, 1967.

8899 INTESTINAL PARASITOSIS IN MONTERREY. ECONOMIC IMPORTANCE. *(Sp.)* Vargas Mena J. (Med. Fac. U. Nuevo Leon, Mexico) and J. E. Ruiz. *Prensa Med Mex* 32(7/8):205-208, 1967.

8900 HEMATEMESIS AND MELENA. ANALYSIS OF 66 CASES OF GASTROINTESTINAL HEMORRHAGE SEEN BETWEEN 1964 AND 1967. *(Turk.)* Damşoğlu, N. (Gastroent. Clin., Ankara, Turkey). *Tip Fak Med (Ankara)* 22(3):934-945, 1968.

8901 SOME *SALMONELLA TYPHIMURIUM* STRAINS DISPLAYING MULTIPLE RESISTANCE TO ANTIBIOTICS DUE TO THE R FACTORS. *(Fr.)* Sasu, D. (Dept. Sanit., Bacău, Romania), M. Candrea and E. Apostică. *Arch Roum Path Exp Microbiol* 26(3):697-704, 1967.

8902 EVALUATION OF AZATEPA IN THE TREATMENT OF MALIGNANT NEOPLASMS. *(Sp.)* Altafulla, M. (Santo Tomás Hosp., Panama). *Arch Med Paname* 17(1):21-28, 1968.

8903 SHIGELLOSIS: AN ANALYSIS OF 239 CASES IN A PEDIATRIC POPULATION. *(E.)* Burry, V. F. (The Child. Mercy Hosp., Kansas City, Mo.), A. N. Thurn and T. G. Co. *Missouri Med* 65(8):671-674, 1968.

8904 DRUG-INDUCED GASTROINTESTINAL BLEEDING. *(Pol.)* Umińska, H. (2nd Surg. Clin., Warsaw, Poland) and K. Bieroński. *Pol Tyg Lek* 23(43):1645-1648, 1968.

8905 HYPERACIDITY AND HYPERSECRETION OF THE STOMACH STUMP–POSSIBILITY OF ZOLLINGER-ELLISON SYNDROME. *(Pol.)* Lityński, M. (Munic. Surg. Hosp., Warsaw, Poland) and W. Altman. *Pol Tyg Lek* 23(44):1698-1700, 1968.

8906 INTESTINAL VASCULAR LESIONS IN THE COURSE OF RHEUMATOID POLYARTHRITIS. *(Fr.)* David-Chaussé, J. (Saint-André Hosp., Bordeaux, France), F. David-Chaussé and M. J. Dureau. *Rev Rhum* 35(7/8):423-428, 1968.

8907 CEFALORIDINE IN THE TREATMENT OF TYPHOID FEVER. [CASE REPORT] *(It.)* Delia, S. (Inst. Infect. Dis., U. Sassari, Italy) and F. Idini. *Policlinico [Prat]* 75(34):786-790, 1968.

8908 HERNIA THROUGH THE FORAMEN OF WINSLOW. [CASE REPORT] *(E.)* Windsberg, E. (Mirian Rhode Island Hosp., Providence, R.I.). *Rhode Island Med J* 51(5):330-331, 1968.

8909 A CASE OF PRIMARY TORSION OF THE OMENTUM. *(It.)* Tocci, C. (Nicola Giannettasio Munic. Hosp., Rossano, Italy). *Clinica (Bologna)* 27(4):307-312, 1968.

8910 SURGICAL ABDOMINAL DISEASES IN OLD AGE FROM THE MATERIAL OF THE 3RD DEPARTMENT OF SURGERY, MEDICAL ACADEMY, WARSAW. *(Pol.)* Raczyński, J. (3rd Surg. Clin., Acad. Med., Warsaw, Poland). *Pol Tyg Lek* 23(32):1200-1202, 1968.

8911 MECONIUM ILEUS EQUIVALENT IN AN ADULT PATIENT. [CASE REPORT] *(E.)* Ibach, E. G. (Dept. Surg., U. Western Australia). *Med J Aust* 1(7):268-269, 1968.

## GENERAL

8912 EARLY SURGERY FOR PERITONEUM AND OBSTRUCTIVE SYNDROMES. [CASE REPORT] *(It.)* Cirenei, A., V. Speranza and U. Milani. *Arch Atti Soc Ital Chir* 1(Part 1):92-164, 1968.

8913 DIAGNOSTIC ERRORS IN DISEASES OF SALIVARY GLANDS. *(Pol.)* Orlowska, I. (Stomatol Surg. Clin., Warsaw, Poland), I. Żychowska and A. Fleisner. *Wiad Lek* 21(1):1-4, 1968.

8914 ASSESSMENT OF THE ANTIBILHARZIAL EFFICACY OF ORAL DEHYDROEMETINE. *(E.)* Abdallah, A. (Inst. Res. Trop. Med., Cairo, Egypt), M. Saif, I. M. Aly and A. Badran. *J Egypt Med Ass* 51(8):687-690, 1968.

8915 BASAL AND HISTALOG-STIMULATED GASTRIC SECRETION IN SOME HELMINTHIC INFECTIONS. I. PATIENTS WITH ANCYLOSTOMIASIS. *(E.)* Gad El-Mawla, N. (Inst. Res. Trop. Med., Cairo, Egypt) and A. Abdallah. *J Egypt Med Ass* 51(8):700-703, 1968.

8916 THE EFFECT OF GENTAMYCIN ON INFECTIOUS GASTRO-ENTERITIS. *(E.)* Shaheen, Y. (Dept. Bacteriol. Pediat., Cairo, Egypt), A. El-Gholmy, D. Riad, A. S. Khalifa and M. Rida. *J Egypt Med Ass* 51(8):704-713, 1968.

8917 ETIOLOGICAL STRUCTURE OF SALMONELLOSES IN THE DZHERZHINSK DISTRICT OF MOSCOW DURING 1963-1965. *(Rus.)* Gotovskaia, Ts. M. (Sanit. Epidemiol. Sta. Dzerzhinsk, Dist. Moscow, USSR), Ie. L. Kazachkova, L. M. Kirgizova, E. I. Pukhova, E. F. Sorokina and S. N. Nosareva. *Zh Mikrobiol* 45(5):54-58, 1968.

8918 GASTROINTESTINAL-ENDOCRINAL RELATIONSHIPS. I. ANTERIOR PITUITARY AND ADRENAL CORTEX. *(Kor.)* Kho, K. D. (Coll. Med., Woo Sok U., Korea) and C. J. Choi. *J Korean Med Ass* 11(3):204-208, 1968.

8919 A CASE OF GASTRO-COLIC FISTULA. *(Pol.)* Polcer, J. Z. (Inst. Radiol., Lodz, Poland) and J. Szklanny. *Wiad Lek* 21(1):57-60, 1968.

8920 TRICHINIASIS. *(E.)* Hennekeuser, H. H. (2nd U. Med. Clin., Mainz, Germany), K. Pabst, W. Poeplau and W. Gerok. *German Med Monthly* 13(8):373-379, 1968.

8921 THE SIMULTANEOUS OCCURRENCE OF OVA RESEMBLING *DICROCOELIUM DENDRITICUM* OR *CAPILLARIA HEPATICA* IN THE STOOLS OF INHABITANTS OF CURACAO. *(E.)* Schouten, H. (St. Elizabeth Hosp., Curacao), R. M. Suriel-Smeets and M. A. Kibbelaar. *Trop Geogr Med* 20(3):271-275, 1968.

8922 AN OUTBREAK OF *ESCHERICHIA COLI* 0119 K69 GASTROENTERITIS IN A LOW BIRTH WEIGHT BABY UNIT IN CEYLON. *(E.)* Mendia, N. M. P. (Epidemiol. Unit, Dept. Hlth. Svc., Ceylon) and E. H. Mirando. *Ceylon Med J* 13(4):186-192, 1968.

8923 SYMPTOM DIAGNOSIS: A COMPARISON OF MATHEMATICAL MODELS RELATED TO UPPER ABDOMINAL PAIN. *(E.)* Scheinok, P. A. (Hahnemann Med. Coll., Philadelphia, Pa.) and J. A. Rinaldo. *Comput Biomed Res* 1(5):475-489, 1968.

8924 HOOKWORMS AND OTHER HELMINTHS IN DOGS, CATS AND MAN IN SURINAM. *(E.)* Rep, B. H. (Inst. Trop. Hyg., Amsterdam, Netherlands). *Trop Geogr Med* 20(3):262-270, 1968.

8925 DISEASES OF THE SPLEEN AND THEIR SURGICAL INDICATIONS IN THE ELDERLY. *(It.)* Nocentini, P. (Inst. Surg. Clin., U. Florence, Italy). *Arch Atti Soc Ital Chir* 1(Part 2):1189-1227, 1967.

8926 EOSINOPHILIA IN THE NORTH AFRICAN. *(Fr.)* Payet, M. (Fac. Med. Pharm., Dakar, Senegal), M. Sankale and A. M. Sow. *Med Afr Noire* 14(8/9): 435-436, 1967.

8927 GIARDIASIS IN CHILDREN. *(E.)* Kidney, W. (Our Lady's Hosp. Sick Child., Dublin, Ireland) and P. D. J. Holland. *J Irish Med Ass* 60(364):375-381, 1967.

8928 THE TREATMENT OF BILHARZIASIS WITH CIBA 32644 Ba (65 PATIENTS TREATED IN DAKAR.) *(Fr.)* Sankale, M. (Fac. Med. Pharm. Dakar, Senegal), R. Baylet, M. Moulanier, J. Giudicelli, R. Aury and Bourgeade. *Med Afr Noire* 14(10):517-522, 1967.

8929 TREATMENT OF HYPERCHOLESTEREMIA WITH CHOLESTYRAMINE, A BILE ACID SEQUESTERING RESIN. *(E.)* Casdorph, H. R. (Community Med. Ctr., Long Beach, Calif.). *Vasc Dis* 4(5):305-308, 1967.

8930 INFREQUENT TUMORS OF THE PAROTID GLANDS: RETICULOSARCOMA AND MALIGNANT MELANOMA. *(It.)* Cirri, G. P. (Inst. Anat. Path. Histol., U. Modena, Italy) and O. Andretta. *Arch Ital Pat Clin Tumori* 10(3/4):397-425, 1967.

8931 ACUTE TORSION OF THE GREATER OMENTUM. *(It.)* Formisano, G. (S. Leonardo Munic. Hosp., Naples, Italy) and V. Celentano. *Rass Mt Clin Ter* 47(19):1090-1095, 1967.

8932 EMOTION AND THE MOTIONS: AN INQUIRY INTO THE CAUSES AND PREVENTION OF FUNCTIONAL DISORDERS OF DEFECATION. *(E.)* Woodmansey, A. C. (Sheffield Child. Hosp., England). *Brit J Med Psychol* 40(3):207-223, 1967.

8933 A-16535 [ERYTHROMYCIN] IN THE TREATMENT OF CHRONIC INTESTINAL AMEBIASIS. *(Por.)* Medeiros, J. (Fac. Med., U. Fed. Pernambuco, Brazil), M. W. Siqueira and R. J. Marques. *Hospital (Rio)* 72(2): 431-437, 1967.

8934 TREATMENT OF ASCARIDIASES WITH TETRAMISOLE IN A RURAL AREA. *(Por.)*

Neto, V. A. (Civil Svc. Hosp., São Paulo, Brazil), R. A. De Sampaio Wanderley and M. O. A. Corrêa. *Hospital (Rio)* 72(2):585-591, 1967.

8935 **THE USE OF A COMBINATION OF THIABENDAZOLE AND PYRVINIUM PAMOATE IN THE TREATMENT OF INTESTINAL HELMINTHIASES.** *(Por.)* Neto, V. A. (Civil Svc. Hosp., São Paulo, Brazil), R. A. De Sampaio Wanderley, G. C. Fleury and L. L. Campos. *Hospital (Rio)* 72(2):593-598, 1967.

8936 **THE CLINICAL AND PATHOLOGICAL ASPECTS OF THE CHRONIC RELAPSING ULCUS JEJUNI PEPTICUM AS A SYMPTOM OF THE ZOLLINGER-ELLISON SYNDROME.** *(Ger.)* Wedell, J. (Dusseldorf, Germany). *Langenbeck Arch Klin Chir* 319:289-292, 1967.

8937 **TWO CASES OF SPONTANEOUS RUPTURE OF THE RECTUS ABDOMINIS MUSCLE.** *(Pol.)* Zwolan, W. (Munic. Miners Hosp., Slupsk, Poland). *Wiad Lek* 20(15):1485-1486, 1967.

8938 **POST-TRAUMATIC DIAPHRAGMATIC HERNIA.** *(It.)* Maggini, M. (S. Maria Nuova Gen. Hosp., Florence, Italy) and P. Manneschi. *Radiol Med (Torino)* 53(11):1127-1134, 1967.

8939 **MODERN TREATMENT OF HELMINTHIASIS.** *(Ser.)* Bezjak, B. (Fever Hosp., Zagreb, Yugoslavia) and V. Breitenfeld. *Lijecn Vjesn* 89(11):865-874, 1967.

8940 **EXTENSIVE CONTINUANCE OF THE OMPHALOMESENTERIC DUCT. [CASE REPORT]** *(Fr.)* Ingelrans, P. (Lille, France), P. Saint Aubert and M. Lejeune. *Ann Chir Infant* 8(3):169-186, 1967.

8941 **MUSHROOM POISONING IN THE PROVINCE OF WARSAW IN THE YEARS 1959-1966.** *(Pol.)* Szeląg, J. (Sanit. Epidemiol. Provincial Sta., Warsaw, Poland), S. Cieślewski and A. Śliwiński. *Wiad Lek* 20(15): 1427-1433, 1967.

8942 **HEMANGIOENDOTHELIOMA OF THE PELVIS. (ANATOMIC-PATHOLOGICAL CONSIDERATIONS OF A CASE IN A TWO YEAR OLD CHILD.** *(It.)* Mattace-Raso, F. (Inst. Anat. Pathol. Histol., U. Naples, Italy) and A. Russo-Spena. *Riv Anat Pat Oncol* 31(4):453-466, 1967.

8943 **INTESTINAL PARASITOSIS IN CHILDREN OF SOLEDAD DIEZ GUTIERREZ, S. L. P.** *(Sp.)* Garrocho Sandoval, C. (Med. Sch. San Louis Potosi, Mexico), B. Margarita Galvan and R. Barajas G. *Prensa Med Mex* 32(11/12):362-365, 1967.

8944 **SOME EPIDEMIOLOGICAL AND CLINICAL ASPECTS OF SALMONELLOSIS.** *(Ser.)* Fališevac, J. (Infect. Dis. Hosp., Zagreb, Yugoslavia), Z. Košutić, I. Petričević and S. Schönwald. *Lijecn Vjesn* 89(7):501-523, 1967.

8945 **MASSIVE MALIGNANT FIBROPLASTIC MESOTHELIOMA OF THE PERITONEUM. [CASE REPORT]** *(It.)* Porrazzi, L. C. (Inst. Anat. Pathol. Histol., U. Naples, Italy) and A. Terlizzi. *Riv Anat Pat Oncol* 31(4):405-416, 1967.

8946 **RESPIRATORY PHYSIOPATHOLOGY IN CONGENITAL DIAPHRAGMATIC HERNIA.** *(It.)* Tuzi, T. (Cytol. Clin., U. Naples, Italy), F. Di Mezza and P. Franco. *Rass Int Clin Ter* 47(23):1309-1322, 1967.

8947 **STUDIES ON THE EPIDEMIOLOGY OF INTESTINAL PARASITES IN LAHORE MENTAL HOSPITAL.** *(E.)* Atiqur-Rahman Ansari, M. (Inst. Hyg. Preventive Med., Lahore, Pakistan) and N. A. Naru. *Pakistan J Hlth* 16(4):197-230, 1967.

8948 **BILHARZIASIS WITH PARTICULAR REFERENCE TO SOUTH AFRICA.** *(E.)* Schneider, J. (Natalspruit Hosp., Germiston, S. Africa). *Med Proc (Johannesburg)* 15(16):287-293, 1969.

8949 **SOME OBSERVATIONS ON CHOLERA EPIDEMICS IN CALCUTTA.** *(E.)* Dutt, A. R. (Infect. Dis. Hosp., Calcutta, India) and S. K. Sen. *J Indian Med Ass* 52(7):326-329, 1969.

8950 **AMOEBIASIS IN INDIA.** *(E.)* Sen Gupta, P. C. *J Indian Med Ass* 52(7):339-342, 1969.

8951 **FLUID LOSS IN CHOLERA. A CURRENT PROSPECTIVE.** *(E.)* Greenough, W. B. III (John Hopkins U. Sch. Med., Baltimore, Md.) and C. C. J. Carpenter. *Texas Rep Biol Med* 27(Suppl.):203-212, 1969.

8952 **LABORATORY DIAGNOSIS OF AMOEBIASIS.** *(E.)* Prakash, O. (All-India Inst. Med. Sci., New Delhi). *Amer J Proctol* 20(4):280-288, 1969.

8953 **STUDIES OF THE MECHANISM OF ACTION OF INTESTINAL ANTIBODY IN EXPERIMENTAL CHOLERA.** *(E.)* Freter, R. (Dept. Microbiol., U. Michigan, Ann Arbor). *Texas Rep Biol Med* 27(Suppl. 1):299-316, 1969.

8954 **MODERN FUNCTION DIAGNOSIS IN GASTROENTEROLOGY.** *(Ger.)* Stahlheber, H. (2nd U. Med. Clin., Munich, Germany) and M. M. Forell. *Materia Med Nordmark* 21(5):272-283, 1969.

8955 **THE ROLE OF CHOLERAGEN IN THE PATHOGENESIS AND IMMUNOLOGY OF CHOLERA.** *(Rev.)(E.)* Finkelstein, R. A. (U. Texas Southwestern Med. Sch., Dallas). *Texas Rep Biol Med* 27(Suppl. 1):181-201, 1969.

8956 **THE ACUTE ABDOMEN IN CHILDREN.** *(E.)* Nixon, H. H. (Hosp. Sick Child., London, England). *Practitioner* 202(1210):497-504, 1969.

## GENERAL

8957 ANTI-DIARRHOEAL AGENTS COMPARED. *(E.)* Anonymous. *Practitioner* 202(1210):569-571, 1969.

8958 SERUM LIPIDS IN HUMAN CANCER. *(E.)* Mays, E. T. (U. Louisville Sch. Med., Ky.). *J Surg Res* 9(5):273-277, 1969.

8959 PENETRATING WOUNDS OF THE ABDOMEN. *(E.)* Loria, F. L. (New Orleans, La.). *J Abdom Surg* 11(9):188-190, 1969.

8960 THE SIGNIFICANCE OF X-RAY EXAMINATION OF THE DIGESTIVE TRACT IN DIAGNOSIS OF PROLONGED ABDOMINAL PAIN IN SCHOOL CHILDREN. *(Cz.)* Tobolková, M. (Pediat. Hosp., Karlovy Vary, Czechoslovakia) and G. Weberová. *Cesk Pediat* 22(12):1091-1093, 1967.

8961 FOREIGN BODIES IN THE GASTROINTESTINAI TRACT. [CASE REPORT] *(E.)* Daseler, E. H. (Pomona, Calif.). *Calif Med* 111(1):19-22, 1969.

8962 SURGICAL TREATMENT OF RUPTURED ABDOMINAL ANEURYSMS. FACTORS INFLUENCING OUTCOME. *(E.)* Stoney, R. J. (U. California Sch. Med., San Francisco) and E. J. Wylie. *Calif Med* 111(1): 1-4, 1969.

8963 MIXED TUMORS OF SALIVARY GLANDS: A REPORT FROM THE TUMOR REGISTRY OF THE UNIVERSITY OF MICHIGAN MEDICAL CENTER. *(E.)* Hendrix, R. C. (Dept. Pathol., U. Michigan, Ann Arbor). *Univ Mich Med Cent J* 35(1):13-14, 1969.

8964 SOME ASPECTS OF DIGESTIVE PSYCHOPATHOLOGY. *(Por.)* Abramovich, M. P. (U. Fed. Rio Grande do Sul, Porto, Alegre, Brazil). *Rev Ass Med Brasil* 15(3):103-110, 1969.

8965 THE USE OF ISOBUTYL CYANOCRYLATE IN SURGERY. *(E.)* Hale, J. E. (Westminster Hosp., London, England). *J Abdom Surg* 11(6):123-126, 1969.

8966 ANAEROBIC BACTERIA OF THE GASTROINTESTINAL FLORA AND THEIR OCCURRENCE IN CLINICAL INFECTIONS. *(Rev.)(E.)* Moore, W. E. C. (Virginia Polytechnic Inst., Blacksburg), E. P. Cato and L. V. Holdeman. *J Infect Dis* 119(6):641-649, 1969.

8967 DISEASES OF THE DIAPHRAGM AND THEIR SURGICAL INDICATIONS IN THE ELDERLY. *(It.)* Biancalana, L. (Inst. Gen. Surg. Clin., U. Turin, Italy) and N. Masera. *Arch Atti Soc Ital Chir* 1(Part 2):135-136, 1967.

8968 EFFECT OF INTESTINAL PARASITES ON THE CIRCULATION OF CHILDREN. *(Pol.)* Baszczyński, J. (Ist Pediat. Clin. Lodz, Poland) and J. Kluska. *Wiad Parazyt* 15(2):163-169, 1969.

8969 THE MANAGEMENT OF CHRONIC OR RECURRENT DIARRHOEA IN CHILDHOOD. *(E.)* Townley, R. R. W. (Queen Victoria Hosp., Melbourne, Australia). *Postgrad Med J* 45(520):135-146, 1969.

8970 REDUCTION OR PREVENTION OF ASPIRIN-INDUCED OCCULT GASTROINTESTINAL BLOOD LOSS IN MAN. *(E.)* Leonards, J. R. (Sch. Med., Case Western Res. U., Cleveland, Ohio) and G. Levy. *Clin Pharmacol Ther* 10(4):571-575, 1969.

8971 ASPECTS OF PEDIATRIC GASTROENTEROLOGY IN INDONESIA. *(E.)* Tumbelaka, W. A. F. J. (Med. Sch., U. Indonesia, Jakarta). *Paediat Indonesia* 9(2):59-66, 1969.

8972 CARDIAC OUTPUT AND ITS DISTRIBUTION IN THE TERMINAL STAGE OF THE GASTROINTESTINAL IRRADIATION SYNDROME ("RADIATION SHOCK"). *(E.)* Jánossy, G. (U. Res. Team Med. Radiol., Budapest, Hungary). *Acta Med Acad Sci Hung* 26(1):23-29, 1969.

8973 CLINICAL EVALUATION OF DOXEPIN AND DIAZEPAM IN PATIENTS WITH GASTROINTESTINAL DISEASE AND ANXIETY. A CONTROLLED DOUBLE BLIND STUDY AND LONG-TERM EVALUATION. *(E.)* Kasich, A. M. (New York, N. Y.). *Psychosomatics* 10(3):18-20, 1969.

8974 THE TWO "HIT" AND MULTIPLE "HIT" THEORIES OF CARCINOGENESIS. *(E.)* Ashley, D. J. B. (Morriston Hosp., Swansea, Wales). *Brit J Cancer* 23(2):313-328, 1969.

8975 A STUDY OF CANDIDA IN THROAT SWABS AND GASTROINTESTINAL TRACT OF THE PATIENTS ON BROAD SPECTRUM ANTIBIOTIC OR STEROID TREATMENT. *(E.)* Shastry, J. C. M., K. Ramachandran, L. N. Mohapatra and B. N. Tandon. *Indian J Med Res* 57(1):133-140, 1969.

8976 A SYNTHETIC COMBINATION IN INFECTIVE GASTROENTERITIS. *(E.)* Anonymous. *Practitioner* 202(1212):849-852, 1969.

8977 CURRENT CONCEPTS IN THE MANAGEMENT OF INTESTINAL HELMINTHIASIS. *(E.)* Lahiri, K. (All-India Inst. Med. Sci., New Delhi) and S. K. Sama. *Indian Pract* 22(1):57-66, 1969.

8978 PSYCHOTROPIC-ANTICHOLINERGIC MANAGEMENT OF GASTROINTESTINAL DISORDERS. *(E.)* Weiss, J. (Polyclin. Med. Sch. Hosp., New York, N. Y.) and S. Weiss. *Curr Ther Res* 11(7):436-446, 1969.

8979 ANTIGENIC ANALYSIS AND BIOCHEMICAL CHARACTERS OF STRAINS OF *ESCHERICHIA COLI*, COMMONLY ASSOCIATED WITH HUMAN DIARRHOEA, ISOLATED FROM SPORADIC CASES OF

GASTROENTERITIS IN LOCAL POPULATION OF DOMESTIC ANIMALS. *(E.)* Yadava, J. N. S. (Cent. Drug Res. Inst., Lucknow, India) and B. M. Gupta. *J Gen Appl Microbiol* 15(2):197-207, 1969.

8980 INTESTINAL PARASITES AND NUTRITIONAL STATUS. A PRELIMINARY REPORT. *(E.)* Lease, E. J. (Sch. Pharm., U. S. Carolina, Columbia), F. H. Lauter and B. W. Dudley. *J S Carolina Med Ass* 65(3):63-66, 1969.

8981 SEPTICOPYEMIC FORMS OF GASTROINTESTINAL SALMONELLOSIS AND THEIR TREATMENT. *(Rus.)* Primacheno, N. B. (Kuban Med. Inst., Krasnodar, USSR), M. L. Khanin, L. A. Grishina and G. A. Uspenskaia. *Sovet Med* 32(6):112-115, 1969.

8982 DIAGNOSIS OF INTESTINAL AMEBIASIS. *(Rus.)* Shamov, Iu. A. (Dagestan Med. Inst., Makhachkala, USSR). *Sovet Med* 32(6):102-106, 1969.

8983 CHIARI-FROMMEL SYNDROME AS A PART OF THE ZOLLINGER-ELLISON MULTIPLE ENDOCRINE ADENOMATOSIS COMPLEX. [CASE REPORT] *(E.)* le Briggs, R. (Kaiser Found. Hosp., Richmond, Va.) and J. R. Powell. *Calif Med* 111(2):92-96, 1969.

8984 DISORDERS OF THE ORGANS IN THE PERITONEAL CAVITY DURING PSEUDOTUBERCULOSIS. *(Rus.)* Rol'shchikov, I. M. (Vladivostok Med. Inst., USSR), V. A. Znamenskii and A. K. Vishniakov. *Vrach Delo* 50(5):40-43, 1969.

8985 EXCRETION OF CATECHOLAMINES BEFORE AND AFTER SURGERY FOR CANCER OF THE GASTROINTESTINAL TRACT. *(Rus.)* Arsirii, S. A. (Dnepropetrovsk Med. Inst., USSR) and G. R. Oife. *Klin Khir (Kiev)* (5):70-72, 1969.

8986 CAUSES OF INTERNAL HERNIAS. *(Rus.)* Babalich, A. K. (Novotritsk Regional Hosp., Kherson Region, USSR). *Klin Khir (Kiev)* (5):84-85, 1969.

8987 DIAGNOSTIC AND THERAPEUTIC CRITERIA IN SMALL DIAPHRAGMATIC HERNIAS. *(Sp.)* de Santos, D. (Fac. Med., Sevilla, Spain). *Rev Esp Enferm Apar Dig* 28(5):647-654, 1969.

8988 IMMUNE RESPONSES AND THE GUT. *(Rev.)(E.)* Watson, D. W. (U. Michigan Med. Ctr., Ann Arbor). *Gastroenterology* 56(5):944-965, 1969.

8989 CHANGES IN CEREBRAL VESSELS IN INFANTS IN THE COURSE OF TOXIC DIARRHEA. *(Pol.)* Michalowicz, R. (Inst. Mother Child., Warsaw, Poland) and A. Milanowski. *Pol Tyg Lek* 23(28): 1056-1058, 1968.

8990 INCREASED SUSCEPTIBILITY OF BACTERIAL INFECTIONS DURING LAMBLIASIS. *(Pol.)* Batko, B. (Milit. Hosp., Gliwice, Poland). *Pol Tyg Lek* 23(43): 1643-1645, 1968.

8991 DIAPHRAGMATIC HERNIA. *(E.)* Tarnay, T. J. (West Virginia U. Sch. Med., Morgantown). *Ann Thorac Surg* 5(1):66-92, 1968.

8992 THE THERAPEUTIC EFFECTS OF HYPERBARIC OXYGENATION ON ACUTE INTESTINA OBSTRUCTION WITH SPECIAL REFERENCE TO ITS PATHOLOGY. *(E.)* Matsukura, S. (Nippon Med. Sch., Tokyo, Japan) and A. Shirota. *Int Surg* 49(1):71-78, 1968.

8993 THE GARDNER SYNDROME: NEED FOR EARLY DIAGNOSIS. [CASE REPORT] *(E.)* Duncan, B. R. (U. Colorado Med. Ctr., Denver), V. A. Dohner and J. H. Priest. *J Pediat* 72(4):497-505, 1968.

8994 PATHOLOGIC STUDY OF ARTERIOSCLEROSIS IN THE COELIAC AND MESENTERIC CIRCULATION. *(E.)* Koikkalainen, K. (U. Cent. Hosp., Helsinki, Finland), E. Laustela and P. Tala. *Ann Chir Gynaec Fenn* 57(2):234-238, 1968.

8995 PAPILLARY CYSTADENOCARCINOMA OF THE SALIVARY GLAND: REPORT OF A CASE. *(E.)* Bookbinder, M. (Grove City, Pa.), J. L. Johnston and B. J. White. . *J Amer Osteopath Ass* 67(6): 672-674, 1968.

8996 SEGMENTAL SPINAL OSTEOPHYTOSIS IN VISCERAL DISEASE. *(E.)* Burchett, G. D. (Kirksville, Mo.). *J Amer Osteopath Ass* 67(6):675-678, 1968.

8997 ACUTE GASTROENTERITIS: A COMMENTARY. *(E.)* Milionis, J. W. (Saginaw, Mich.). *J Amer Osteopath Ass* 67(6):668-671, 1968.

8998 EVOLUTION OF TYPHOID FEVER IN PETERSBURG-LENINGRAD. *(Rus.)* Beznosova, S. N. (Leningrad Sanit. Hyg. Med. Inst., USSR). *Zh Mikrobiol* 45(5):87-92, 1968.

8999 HEMORRHAGE IN DIVERTICULITIS. *(E.)* Brown, H. W. (Huron Road Hosp., Cleveland, Ohio) and S. Roy. *Int Surg* 49(2):135-142, 1968.

9000 PERSONAL EXPERIENCE WITH METHOCLOPRAMIDE IN UPPER ABDOMINAL SURGERY: OBSERVATIONS ON 139 CASES. *(Fr.)* Masera, N. and P. Trapani. *Chir Gastroent* 2(2):249-252, 1968.

9001 EXPERIENCES WITH CIBA 32,644 BA (AMBILHAR) IN THE TREATMENT OF SCHISTOSOMIASIS. *(E.)* Kelani, Y. Z. (Sabah Hosp., Kuwait) and P. Wilson. *J Kuwait Med Ass* 2(3):151-162, 1968.

9002 LABORATORY DIAGNOSIS OF SONNE DYSENTERY BY THE IMMUNOFLUORESCENT METHOD. *(Rus.)* Ulisko, I. N. (Moscow Inst. Vaccines Sera, USSR), Ie. V. Kholodkova, M. Ia. Savina, K. L. Shakhanina and V. A. Chibisova. *Zh Mikrobiol* 45(5):14-18, 1968.

9003 **CURRENT ASPECTS IN EPIDEMIOLOGY OF TYPHOID FEVER.** *(Rus.)* Kolobova, L. F. (Cent. Inst. Epidemiol., Moscow, USSR) and Iu. P. Solodovnikov. *Zh Mikrobiol* 45(5):92-95, 1968.

9004 **NOSOGEOGRAPHY OF ACUTE INTESTINAL DISEASES IN THE USSR.** *(Rus.)* Il'chenko, T. D. (Cent. Inst. Epidemiol., Moscow, USSR). *Zh Mikrobiol* 45(5):102-112, 1968.

9005 **GENERAL AND EPIDEMIOLOGICAL CONSIDERATIONS OF SCHISTOSOMIASIS *[S. HAEMATOBIUM]* IN CUBA. TREATMENT OF A CASE.** *(Sp.)* Argudín Romero, J. M. (Sch. Med., U. Havana, Cuba), R. Otero Domínguez, A. J. Gonzáles, R. Soto Travieso, F. Scotolongo Guerra, J. C. Morales, R. Pérez Martinez and A. Paramio. *Rev Cubana Med Trop* 20(1/3):5-18, 1968.

9006 **STUDY OF INTESTINAL PARASITISM BY THE H-F-51 METHOD IN GRANJA TURIGUANO (CAMAGUEY PROVINCE). JANUARY TO MARCH 1967. PRELIMINARY REPORT.** *(Sp.)* Domínguez Carbayo, B. (Regional Hosp. Morón, Cuba), F. Ramirez Corría, R. Soto Travieso, J. Esber Kourí and J. Amor Fajardo. *Rev Cubana Med Trop* 20(1/3):43-46, 1968.

9007 **OMPHALOCELE ASSOCIATED WITH DIAPHRAGMATIC HERNIA.** *(E.)* Beardmore, H. E. (Montreal Child. Hosp., Canada), M. Martini, J. S. Fawcett and L. Dallaire. *Z Kinderchir* 5(Suppl.):39-48, 1968.

9008 **A CASE OF RETROPERITONEAL LIPOSARCOMA.** *(It.)* Valentini, S. B. and I. Rossodivita. *Chir Gastroent* 2(2):200-205, 1968.

9009 **STUDY OF DYSENTERY FOCUS CAUSED BY *SHIGELLA FLEXNERI,* SEROTYPE 6.** *(Rum.)* Oană, C. (Inst. Hyg., Iasi, Romania), E. Ioan, E. Popescu, S. Rădulescu, M. Mardare, E. Herşcovici, D. Iordachescu and C. Bercovici. *Rev Med Chir* 72(4):923-928, 1968.

9010 **STUDY OF SALMONELLA AND SHIGELLA CARRIERS AMONG THE HOSPITAL PERSONNEL IN SAIGON.** *(Fr.)* Do-Thi-Nhuan (Inst. Pasteur, Saigon, Viet-Nam), Phan-Huu-Danh, Ngo-Anh-Tuan and Phan-Trong-Nghia. *Bull Soc Path Exot* 61(1):97-104, 1968.

9011 **A CASE OF MESENTERIC ADENITIS IN THE FORM OF A TUMOR CAUSED BY A YERSINIA SPECIES.** *(Fr.)* Mollaret, H. H., M. Mailloux, P. Destombes and G. Araluce. *Bull Soc Path Exot* 61(1): 80-83, 1968.

9012 **SEROLOGICAL DIAGNOSIS OF HUMAN ANGUILLULOSIS BY MEANS OF IMMUNOFLUORESCENCE. PRELIMINARY RESULTS.** *(Fr.)* Coudert, J. (Med. Fac., Lyon, France), P. Ambroise-Thomas, Kien Truong Thai and M. A. Pothier. *Bull Soc Path Exot* 61(1):74-80, 1968.

9013 **PATHOGENIC AND THERAPEUTIC PROBLEMS OF AMEBIC INFECTIONS.** *(It.)* Ghione, M. (Farmitalia Res. Inst., Milan, Italy) and A. Sanfilippo. *G Mal Infett* 20(12):993-1004, 1968.

9014 **PERITONITIS AFTER A BARIUM MEAL.** *(Rum.)* Ionescu, M. (Inst. Med. Pharm., Mures, Romania), E. Lax, E. Kesztembaum and G. Birsan. *Rev Med Chir* 72(4):991-994, 1968.

9015 **DESMOID TUMORS OF THE ABDOMINAL WALL.** *(It.)* Ferrera, S. (Inst. Gen. Surg. Clin., U. Catania, Italy) and M. O. Ippolito. *Arch Ital Chir* 94(6):851-862, 1968.

9016 **INFLAMMATION OF A COMPLEX ANASTOMOSIS.** *(It.)* Ruggieri, E. (Inst. Gen. Surg., Clin. U. Naples, Italy) and R. Docimo. *Arch Atti Soc Ital Chir* 1(Part 1):579-617, 1968.

9017 **EARLY SURGICAL TREATMENT OF BLEEDING.** *(It.)* Speranza, V. and A. Cirenei. *Arch Atti Soc Ital Chir* 1(Part 1):31-91, 1968.

9018 **A STUDY OF THE NATURE OF PARENTERAL DYSPEPSIA AND ITS SIGNIFICANCE IN THE EPIDEMIOLOGY OF ACUTE INTESTINAL INFECTIONS.** *(Rus.)* Gres', B. Ie. (Kharkov Sci. Res. Inst. Microbiol., Vaccines Sera, USSR), R. D. Zlatopol'skaia, O. S. Belaia and O. D. Gaplevskaia. *Vop Okhr Materin Dets* 13(9):86-87, 1968.

9019 **THE POSSIBILITY OF DIFFERENTIAL DIAGNOSIS OF ENTEROCOLITIS 0124 AND ACUTE DYSENTERY.** *(Rus.)* Vasil'koya, Z. Ie. (Gorkov Med. Inst., USSR), Ie. A. Chizhov, B. A. Garanin and N. Ia. Negmatullina. *Vop Okhr Materin Dets* 13(10):87, 1968.

9020 **CLINICAL AND MORPHOLOGICAL CHARACTERISTICS OF ULCERATIVE-NECROTIC ENTEROCOLITIS IN PREMATURE CHILDREN.** *(Rus.)* Aronina, L. G. (Inst. Pediat., Moscow, USSR), Ie. V. Artemkina and A. F. Sorokin. *Vop Okhr Materin Dets* 13(5): 51-56, 1968.

9021 **CLINICAL CHARACTERISTICS OF DYSENTERY IN RECENT YEARS.** *(Rus.)* Sukhareva, M. Ie. (Cent. Inst. Postgrad. Med., Moscow, USSR), Ie. A. Liniaieva, M. M. Levinson and L. N. Miliutina. *Vop Okhr Materin Dets* 13(4):26-31, 1968.

9022 **EFFECT OF HALIDOR ON THE VARIOUS PATHOLOGIC PROCESSES OF THE GASTROINTESTINAL MUCOUS MEMBRANE.** *(E.)* Dvorsky, A. (Inst. Nutrit., Bratislava, Czechoslovakia). *Ther Hung* 16(1): 21-27, 1968.

9023 **INTESTINAL FORM OF MALIGNANT ANTHRAX, WHICH WAS CURED.** *(Rus.)* Gorbunova, M. M. (Republican Hosp., Tuvinsk ASSR, USSR). *Zh Mikrobiol* 45(6):150, 1968.

9024 **INFANTILE INTESTINAL PARASITISM. ANALYSIS OF 470 CHARTS.** *(Sp.)* Franco I. J. (A. Mann Child. Hosp., San Jose, Costa Rica). *Rev Hosp Niños Alejandro Mann* 7(1/2):20-22, 1968.

9025 **METHOXYFLURANE IN ABDOMINAL SURGERY.** *(Sp.)* Casquero Gherardi, L. (Jimenez Diaz Found., Madrid, Spain). *Rev Esp Anest* 15(4):594-598, 1968.

9026 **STRONGYLOIDES STERCOLARIS DIAGNOSIS BY THE BAERMANN METHOD.** *(Sp.)* Razon, R. (William Soler Child. Hosp., Havana, Cuba) and T. Bienvenida Reyes. *Rev Cubana Med Trop* 20(1/3):73-77, 1968.

9027 **ADVANTAGES OF A COLLOIDAL HEXYLRESORCINOL 1 X 300 ENEMA IN TRICHOCEPHALIASIS TREATMENT.** *(Sp.)* Cid Morales, M. (Banes Gen. Hosp., Cuba). *Rev Cubana Med Trop* 20(1/3):47-55, 1968.

9028 **A NEW CONTRIBUTION IN THE TREATMENT OF AMEBIASIS.** *(Sp.)* Otero Domínguez, R. (Dept. Parasitol., U. Havana, Cuba) and J. M. Argudín Romero. *Rev Cubana Med Trop* 20(1/3):69-72, 1968.

9029 **INTESTINAL PARASITISM MORBIDITY AS A CAUSE OF ACUTE DIARRHEA.** *(Sp.)* Cid Morales, M. (Gen. Hosp. Banes, Cuba). *Rev Cubana Med Trop* 20(1/3):57-67, 1968.

9030 **INTESTINAL INTUSSUSCEPTION. A STUDY OF 31 CASES.** *(Sp.)* Picañol, J. (Hosp. Santa Cruz San Pablo, Spain). *An Hosp S Cruz* 28(3):221-228, 1968.

See also: 7739,7766,7816,7942,8133,8151,8187,8279,8282,8349,8368,8384,8412,8419,8432,8463,8476,8477,8479,8481
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## DESCRIPTION OF INDEXES

Starting with Volume 3, Number 1, the SUBJECT and AUTHOR INDEXES have been generated directly from computer-stored files. The Indexes to prior volumes were manually prepared.

The Subject Index uses a system of permuted *major class* terms combined with SEE and SEE ALSO references. A *major class* term is one embracing a broad concept which can be broken down into *minor class* terms.

The *major class* terms have been permuted so that the accession numbers of the indexed abstracts and citations will be found by the User under each of the principal component words of the *major class* term, no matter which component word he looks up first in the alphabetical index. For example, the accession numbers of abstracts and citations concerning

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**and under**

**NEOPLASMS, BENIGN GASTROINTESTINAL.**

In several cases, more than one term is used in the literature to express a single concept. To ensure consistency of indexing and facilitate complete retrieval, it was necessary to select one of these synonyms for indexing purposes. The SEE references have been inserted to guide the User to the preferred term.

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08761 08767 08771
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08641* 08645 08651 08688 08695 08725

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08763 08765 08769 08755*

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08641* 08645 08673
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08631* 08753* 08762
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07733* 08693 08695
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08733* 08751* 08753*
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08368 08623* 08668 08759 08772 08777 08780
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08676 08696 08725
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08014 08655 08710
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08257* 08282 08292 08313 08322 08472 08495 08830*
08908 08986
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07971*
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07971* 08110 08938 08967 08991 09007
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08063* 08067* 08074* 08076* 08079* 08085 08092 08094
08097 08108 08111 08112 08113 08114 08115 08116
08117 08118 08119 08129 08446* 08946 08987
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08063* 08067* 08074* 08076* 08079* 08085 08092 08094
08097 08108 08111 08112 08113 08114 08115 08116
08117 08118 08119 08129 08446* 08946 08987
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07995*
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07751 07795 07968 07985 08247* 08250* 08282 08288
08433*
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08321 08532 08838
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07943 08023 08665 08707
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07992*
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08653 08719
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07833
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08509
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08266
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08534 08546
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07974 07987 08432* 08906
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08040 08052 08053 08430* 08438* 08445* 08446* 08458
08474 08476 08478 08487 08513 08519 08520 08524
08530 08535 08539 08541 09019

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08445*
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08456 08467 08473 08519 08533
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08506 08515 08965 08174 08895*
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07723* 07759 07772 08433* 08449 08470
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07966* 08430* 08953 08990
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08442* 08465 08516 08540 08541 09020
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08052 08513
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07738 07740 07749 07759 07982 08029 08039 08456
08487 08530 08532 08990 08992 09002 09003 09009
09018 09021 09023
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07750 07824 08438* 08508 08521
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07811* 07813* 07816 08199 08321 08439* 08441*
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07723* 07760 07772 07774 07787 07792 07970 08471
08497 08508 08518
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08518
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08314 08441* 08453 08470 08476 08486 08501 08993
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08535
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08529 08544 08545 08559 08902
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08838 08895* 08898 08992
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08262 08314 08432* 08471 08479 08515 08518 08521
08538 08542 08544 08545 08554 08984 08992 09018
09020
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07723*
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08470 08544 08993
LARGE INTESTINE RADIOLOGY
08040 08433* 08438* 08459 08468 08519 08520 08529
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07800
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08451 08525
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07739 08124 08249* 08294 08310 08314 08431* 08433*
08434* 08435* 08442* 08444* 08448 08449 08451 08452
08453 08454 08457 08461 08462 08467 08470 08473
08482 08488 08491 08492 08493 08494 08495 08497
08501 08505 08506 08514 08515 08516 08522 08530
08533 08539 08543 08544 08545 08546 08552 08606
08898 08919
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08447* 08457 08469 08505 08507
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07787 07974
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07753 07867* 07908
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07734* 07891* 07893* 07903* 07912 07927 08642* 08728*
08749 08794 08958
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08133 08378 08624* 08700 08725 08726 08730* 08660
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07886*
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07877* 08618* 08678 08680 08681
LIVER ANGIOGRAPHY
07983 08036 08037 08038 08787*
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08185 08652 08684
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07718* 07732* 07734* 07741 07754 07755 07762 07768
07775* 07877* 07879* 07881* 07882* 07886* 07887* 07888*
07889* 07890* 07892* 07895* 07897* 07898* 07899* 07903*

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07906 07909 07916 07920 07926 07928 07929 07934
07936 07947 07948 07949 07950 07951 07952 07953
07954 07956 07957 07958* 08028 08620* 08621* 08627*
08630* 08633* 08640* 08696 08728* 08740 08777 08779
08814 08824
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08652
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08044 08648 08667 08672 08696 08727 08738 08762
08785* 08801 08828*
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08638* 08639* 08640* 08711 08712 08722 08739 08942
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07881* 07882* 07893* 07903* 08796
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07773 08629* 08675 08734*
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07898* 08621*
LIVER CHOLESTEROL METABOLISM
07912 08642*
LIVER CIRCULATION
07746 07893* 07977 07978 07981 07983 08036 08618*
08659 08683 08783* 08786* 08787* 08799 08807
LIVER COMA
08008* 08613 08635* 08645 08651 08679 08683 08703
08724 08733* 08735 08748 08765
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07899* 08621* 08637*
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08650 08699 08705 08716
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07756 07879* 07947 08630*
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07990* 07998* 08014 08025 08043 08205 08621* 08632*
08638* 08672 08676 08696 08715 08742 08775 08785*
08787* 08790

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07748 07992* 08016 08047 08652 08654 08656 08673
08686 08700 08721 08832*
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08693
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08626* 08712 08714 08723 08724 08733* 08802 08808
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08618* 08620* 08623* 08637* 08646 08662 08663 08665
08708 08714 08720 08730* 08787* 08788* 08800 08805
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07882* 07883* 07886* 07888* 07889* 07890* 07892* 07893*
07894* 07896* 07898* 07903* 07909 07917 07918 07920
07924 07925 07927 07928 07929 07930 07933 07947
07948 07951 07952 07954 07957 07958* 07992* 08008*
08633* 08639* 08640* 08678 08680 08681 08728* 08753*
08777 08785* 08804 08814 08825*
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07722* 07778* 07794 07804 07831 07893* 07894* 07900*
07913 07940 07942 08008* 08013 08015 08016 08044
08191 08205 08287 08375 08622* 08631* 08634* 08662
08669 08674 08676 08681 08694 08720 08721 08732*
08743 08746 08751* 08753* 08763 08775 08792 08807
08860 08954
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07895* 07958*
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07755 07881* 07895* 07939 08634* 08647 08731*
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07893*
LIVER HISTOLOGY
07722* 07727* 07732* 07746 07756 07758 07762 07764
07770 07771 07773 07809* 07878* 07893* 08043 08627*
08628* 08629* 08634* 08641* 08644 08728* 08788* 08796
08800 08811 08825* 08863
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07731* 07732* 07733* 07768 07770 08640* 08675 08764
08774 08788*
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07943 08694 08727 08730* 08812
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07878* 08047 08625* 08636* 08646 08717 08729* 08736
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07897* 07923
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07943 08023 08665 08707
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08749 08794 08958
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07784* 07871 07881* 07882* 07883* 07893* 07906 07910
07913 07923 07932 07955 08633* 08644 08659 08683
08685 08731* 08786* 08806
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08679 08700 08745
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07741 07756 07771 07809* 07940 07981 08036 08666
08759 08790 08807
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08633* 08650 08685 08687
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08699
LIVER NEOPLASMS,MALIGNANT
07990* 08639* 08640* 08649 08677 08699 08710 08727
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08659 08663 08667 08668 08683 08700 08705 08716
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08759 08779 08787* 08797 08807 08812 08819 08820
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07893* 07895* 07910 07918 07955 08635* 08724 08735
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07721* 07742 07746 07880* 07900* 07905 07919 07921
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07743 07990* 07770
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08006*
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07742 07804 07878* 07915 07942 07946 08205 08622*
08624* 08625* 08629* 08636* 08666 08699 08714 08717
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07877* 08637*
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07742 07743 07746 07747 07754 07755 07758 07764
07771 07936 07940 07941 07956 08628* 08663 08668
08670 08729* 08742 08756* 08759
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07881* 07916
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07875 07877* 07880* 07894* 08669 08744 08782* 08788*
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08416 08626* 08688 08723
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07879*
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07928 07958*
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07721* 07747 07754 07758 07762 07778* 07880* 07889*
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08738 08739 08741 08742 08743 08744 08746 08748
08749 08750 08811
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07733* 08693 08695
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07973* 08414
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08164 08421
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08411* 08415 08428
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08410*
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08252* 08425
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08410* 08419 08428 08969
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07726* 08412*
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08409* 08413* 08423 08424 08429
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08308 08415 08424
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09008 09015
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08576
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08295 08305 08320
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07973* 08068* 08070* 08071* 08072* 08075* 08088 08103
08104 08106 08120 08121 08122 08242
MALIGNANT GALLBLADDER NEOPLASMS
08835*
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08446* 08591 08945 08958
MALIGNANT LARGE INTESTINE NEOPLASMS
08430* 08434* 08446* 08450 08458 08468 08480 08489
08529 08544 08545 08559 08902
MALIGNANT LIVER NEOPLASMS
07990* 08639* 08640* 08649 08677 08699 08710 08727
08819
MALIGNANT PANCREAS NEOPLASMS
08565* 08567 08588 08671 08983
MALIGNANT RECTUM NEOPLASMS
08194 08436* 08484 08488 08526
MALIGNANT SALIVARY GLAND NEOPLASMS
08930 08995
MALIGNANT SMALL INTESTINE NEOPLASMS
08259 08269 08270 08285 08300 08305 08323
MALIGNANT STOMACH NEOPLASMS
08070* 08137* 08150 08163 08166 08170 08171 08173
08177 08183 08198 08207 08219 08222 08227 08230
08232 08234 08237 08238 08240 08241 08242 08323
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08090 08091 08097 08099 08102 08103 08106 08114
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07832 08024 08041 08048 08059 08446* 08567 08573
08587 08704 08851 08896* 08919 08960
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07990* 07998* 08006* 08024 08654 08783* 08787*
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07995* 08855
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07999* 08002* 08007* 08561* 08579
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08440*
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08185 08676 08775 08792
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08185 08676 08775 08792
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07787 07792 07793 07795 07798 07803 07805 07806
07808 07828* 07833 07967 08283 08308 08424 08951
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08250* 08282 08299 08306 08310 08938 09030
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07738 07753 07760 07772 07958* 07961* 07963* 07968
07969 07970
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08415 08421 08425 08752*
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07974 07987 08264 08280 08286 08906
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07963* 07965* 08316
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07808 07813* 07814* 07816 07817 07821 08199 08251*
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08259 08269 08270 08285 08300 08305 08323
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08181 08204 08221 08277 08284 08293 08298 08307
08333* 08343 08344 08347 08364 08377 08382 08386
08395 08448 08451 08460 08466 08485 08497 08558
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08202 08208 08216 08217 08218 08234 08238 08259
08276 08277 08305 08320 08354 08462 08488 08500
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08320 08333* 08345 08370 08387 08563* 08568 08576
08606 08684 08853 08881
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08077* 08080* 08081 08084 08085 08089 08092 08095
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# GASTROENTEROLOGY
# ABSTRACTS AND CITATIONS

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## NOTE

Journal names are abbreviated according to the list of abbreviations used by *Index Medicus.* For journals not covered by *Index Medicus,* the abbreviations (with some modifications) found in *World Medical Periodicals,* 3rd Edition, are used.

## LANGUAGE ABBREVIATIONS

| | |
|---|---|
| Afr. | Afrikaans |
| Ar. | Arabic |
| Bul. | Bulgarian |
| Ch. | Chinese |
| Cz. | Czech |
| Dan. | Danish |
| Dut. | Dutch |
| E. | English |
| Eston. | Estonian |
| Fin. | Finnish |
| Fl. | Flemish |
| Fr. | French |
| Ger. | German |
| Gr. | Greek |
| Heb. | Hebrew |
| Hun. | Hungarian |
| Ic. | Icelandic |
| In. | Indonesian |
| It. | Italian |
| Jap. | Japanese |
| Kor. | Korean |
| Latv. | Latvian |
| Lith. | Lithuanian |
| Nor. | Norwegian |
| Pol. | Polish |
| Por. | Portuguese |
| Rum. | Rumanian |
| Rus. | Russian |
| Ser. | Serbo-Croatian |
| Sl. | Slovak |
| Sp. | Spanish |
| Sw. | Swedish |
| Th. | Thai |
| Turk. | Turkish |
| Uk. | Ukrainian |
| Viet. | Vietnamese |

## ABBREVIATIONS USED IN ABSTRACTS

| | |
|---|---|
| ACTH | adrenocorticotropic hormone |
| ADP | adenosine diphosphate |
| AMP | adenosine monophosphate |
| ATP | adenosine triphosphate |
| BSP | sulfobromophthalein |
| C | degrees centigrade |
| cm | centimeter(s) |
| CNS | central nervous system |
| cpm | counts per minute |
| DNA | deoxyribonucleic acid |
| e.g. | for example |
| g | gram(s) |
| μg | microgram(s) |
| hr | hour(s) |
| i.m. | intramuscular |
| i.p. | intraperitoneal |
| IU | international unit(s) |
| i.v. | intravenous |
| kg | kilogram(s) |
| LD50 | median lethal dose(s) |
| LDH | lactic acid dehydrogenase |
| m | meter(s) |
| M | molar |
| mEq | milliequivalent(s) |
| mM | millimolar |
| μM | micromolar |
| mC, μC | milli-, microcurie(s) |
| mg | milligram(s) |
| min | minute(s) |
| ml | milliliter(s) |
| mm | millimeter(s) |
| MTD | maximum tolerated dose |
| ng | nanogram $(10^{-9})$ |
| pg | picogram $(10^{-12})$ |
| p.o. | orally |
| ppm | parts per million |
| r | Roentgen |
| RBC | red blood cells (erythrocytes), red blood count |
| resp. | respectively |
| Rev. | review (only in citations) |
| RNA | ribonucleic acid |
| s.c. | subcutaneous |
| sec | second(s) |
| SGOT | serum glutamic-oxalacetic transaminase |
| SGPT | serum glutamic-pyruvic transaminase |
| U | unit(s) |
| UV | ultraviolet |
| WBC | white blood cells (leukocytes), white blood count |
| yr | year(s) |

## DESCRIPTION OF INDEXES

Starting with Volume 3, Number 1, the SUBJECT and AUTHOR INDEXES have been generated directly from computer-stored files. The Indexes to prior volumes were manually prepared.

The Subject Index uses a system of permuted *major class* terms combined with SEE and SEE ALSO references. A *major class* term is one embracing a broad concept which can be broken down into *minor class* terms.

The *major class* terms have been permuted so that the accession numbers of the indexed abstracts and citations will be found by the User under each of the principal component words of the *major class* term, no matter which component word he looks up first in the alphabetical index. For example, the accession numbers of abstracts and citations concerning

**BENIGN GASTROINTESTINAL NEOPLASMS**

**will also be found under**

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In several cases, more than one term is used in the literature to express a single concept. To ensure consistency of indexing and facilitate complete retrieval, it was necessary to select one of these synonyms for indexing purposes. The SEE references have been inserted to guide the User to the preferred term.

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00550 00653 00750 00755 00783 00838 00883* 00885*
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00991 01287 01383 01455 01467 01473 01479 01515
01521 01527 01747 01753 01762 01767 01779 01811
02032* 02068 02069 02072 02141 02152 02183 02332
02530 02549* 02555 02590 02598 02602 02616 02766*
02783 02791 02858 03031 03065* 03091 03314* 03330
03336 03347 03382 03395 03409 03419 03430 03431
03781 03830 03890 03894 04004 04025 04026 04196*
04213 04219 04220 04221 04238 04240 04257 04541*
04578 04698 04741 04853* 04901 05075 05427 05462
05490 05583 05616 05618 05620 05783 05811 05811
05813 05819 05827 05853 05885 05971 06045 06196
06246 06253 06257 06261 06262 06264 06270 06271
06273 06282 06289 06330 06331 06336 06338 06350
06362 06363 06368 06370 06374 06715* 06725 06811
07130 07147 07165 07533* 07578 07581 07614 07641
07642 07656 07816 08031 08108 08178 08182 08293
08313 08488 08871 08908 08910 08912 08937 08940
08986 09000 09025 06335
ABDOMEN TRAUMA
00228* 00352 00645* 00648 00885* 00936 00956 00983
00986 01246 01271 01281 01361 01376 01383 01557
01617 01702 01812 02032* 02159 02309 02543* 02549*
02555 02590 02766* 02859 02992 03142 03336 03395
03411 03419 03430 03889 04026 04242 04257 04578
04794 05047 05394* 05461 05868 06189 06338 06980
07291 07533* 07538 08049 08304 08570 08582 08747
08909 08959
ABDOMEN TRAUMA IN CHILDREN
00983 01359 03888 05066 05861 05901 06316
ABDOMEN TREATMENT
07584 08937
ABDOMEN,ACUTE
00581 00952 01458 01768 01777 02152 02181 02577
02959* 03875 04010 04793 04901 05394* 05505 05705
05871 06054* 06340 07176 07637 07642 08031 08259
08581 08909
ABDOMEN,AGE EFFECTS ON
00983

ABSCESSES
00590 00608 00612 00625 00883* 00988 01460 01462
01471 01474 01479 01532 01732* 02094 03083* 03706
03776 03980 03990 04772 04779 04786 05065 05714
05784 05801 05808 06213 06266
ABSCESSES,LARGE INTESTINE
08515
ABSCESSES,LIVER
00222* 00682* 00703* 00723 00728 00731 00926 01230
01491* 01536* 01554* 01570 01601 01607* 01728* 02052
02091 02354 02372 02433 02442 02450 03028 03113
03179 03201 03216 03220* 04092* 04108 04124 04555*
04863* 04927 04930 04939 04943 05044 05911* 05972
06003 07165 07240* 07241* 07265 07280 07294 07298
07634 07715 08133 08378 08624* 08700 08725 08726
08730* 05391* 08660
ABSCESSES,PANCREAS
00654 00665* 00667* 01527 07194* 08574
ABSESSES,GASTROINTESTINAL
05158*
ABSORPTION IN CHILDREN
02027* 06261
ABSORPTION STUDY TECHNIQUES
00029* 00258 00262 00466 01040* 01041* 01052 01053
01054 01058 01061 01064 01373 01437 01844* 01856
02024* 02027* 02586 02823 02861 03494 03705 04599
05695 06259 07735*
ABSORPTION,AGE EFFECTS ON
00040 04319*

ABSORPTION,ALCOHOL
02715 03572 05155* 05209 06100* 06643 07792
ABSORPTION,AMINO ACID
SEE ALSO PROTEIN ABSORPTION
00023* 00026* 00033* 00546 00548 01038* 01050* 01052
01062 01351* 01845* 01848* 01850* 01856 02378 02729
02737* 02738* 03446* 04315* 04325 04483* 04485* 05145
05163* 06472* 06477* 06483 06523 07782* 07828* 07868*
ABSORPTION,AMMONIA
01588 02003* 02831
ABSORPTION,BICARBONATE
00030* 02640*
ABSORPTION,BILE ACID
01055
ABSORPTION,BILE SALT
00028* 00529* 02748
ABSORPTION,BILIARY TRACT
01842*
ABSORPTION,CALCIUM
00040 00465 00542 00547 00549 01313* 01840* 01876*
03040* 03493 03598 03959* 03965 04117 04218 04312*
04319* 04330 04384 05185 05369 05372 06259 06466*
06475* 06476* 06480* 06492 06500 06699 07779* 07780*
07786* 07793 08055
ABSORPTION,CARBOHYDRATE
00026* 00034* 00039 00040 00262 00520* 00538 00554
00555 01036* 01040* 01052 01060 01215* 01351* 01353*
01433 01435 01436 01440 01745 01839* 01848* 01865*
01989* 02024* 02235* 02238* 02250 02352* 02573 02815
02825 02827 03057 03200 03259* 03423 03482* 03492
03966 03967 04063 04314* 04317* 04406* 04566 05730
06226* 06319 06388 07064* 07069 07780* 07785* 07806
07808 08409* 08796
ABSORPTION,CAROTENE
SEE ALSO VITAMIN A ABSORPTION
02025* 02906* 03495 04851* 05166* 07931
ABSORPTION,CHLORIDE
00030* 00068* 00603 00658 01186 04309* 06179 07781*
ABSORPTION,CHOLESTEROL
00028* 00041 00122* 00184* 00193 00434* 00436* 01042*
01357* 01371 01372 01373 01374 01712 03483* 04995
05170 05171 07907
ABSORPTION,COBALT
01047*
ABSORPTION,COPPER
01842* 02788 02830 03183 05992 07783*
ABSORPTION,DISACCHARIDE
03132*
ABSORPTION,DRUG
00032* 00040 00042 00043 01039* 01741 02382 03313*
03400 03494 04324* 04329 04331 04332 05178 06501
ABSORPTION,DRUG EFFECTS ON
00035* 01849*
ABSORPTION,DUODENUM
02831
ABSORPTION,ELECTROLYTE
00029* 00030* 00039 00068* 00591 00658 01045* 01052
01061 01063 01065 01186 01437 01865* 02255* 02640*
02644 02646 02647 02667 03202 03362 03368 03423
04518 05145 05580 06493 07710 07781* 07795 08548*
ABSORPTION,FAT
00530* 05162* 07065*
ABSORPTION,FATTY ACID
00025* 00040 00161 00191 00274 00657 01041* 01042*
01051 01056 01351* 01426* 01851 01853 01990 02027*
02154 02236* 02416* 02705* 02726 02823 02861 03022
03397 03479* 03542* 03543* 03587 03596* 04311* 04327
04750* 04761* 04843 06478* 07777*
ABSORPTION,FOLIC ACID
00540 00552 00554 00556 00560 01044* 01052 02650
03209 05729 07077
ABSORPTION,FRUCTOSE
06522 07074 08409* 08420 08786*
ABSORPTION,GALACTOSE
00040 01060 01433 02573 04317* 05457 05730 05997
06097* 07061* 07062* 07067* 07264 08796
ABSORPTION,GALLBLADDER
00024* 00035* 01065 03631 07807
ABSORPTION,GASTROINTESTINAL
00037 00038 00560 01051 01052 01066 01741 02632
02644 02748 02755 03596* 04287 04316* 04329 04332
04517 04525 05154* 05166* 05711 05730 06326 06476*
06482 06490 06499 06500 06501 07609 07797 07799
07802

ABSORPTION,GLUCOSE
00034* 00040 01052 01060 01190 01433 01849* 02024*
02235* 02352* 02378 02668 02815 02827 03423 03489*
03966 04063 04309* 04317* 04748* 05052 05090* 05142
05154* 05180 05730 06226* 06481* 06499 06522 06640
06670* 07062* 07067* 07424* 07803 07806 07808 07875
02706*
ABSORPTION,HORMONAL CONTROL OF
01063 01064 03959* 04325
ABSORPTION,IRON
00037 00044 00887* 01047* 01048* 01053 01843* 01854
02405 02586 02643* 02649 02651 02689 03137 03208
03480* 03486* 03490* 03498* 04100 04106 04363* 05167
05168 05169 05529 05869 06464* 06487 06488 06495
06497 06740 07234* 07313 07798 07799 08665 08691
ABSORPTION,LACTOSE
00538 01436 01440 01444 01745 01754 02243 02244
02250 02820 02825 03057 04199* 04566 04749* 05726
05730 05735 07067* 07115 07964* 08417
ABSORPTION,LARGE INTESTINE
00029* 00030* 00603 01055 01061 01840* 01844* 01849*
02255* 02275 02582 02646 02647 02689 02809 02831
03048 03429 03491* 03493 03495 03523 03967 03968
04327 04332 04517 04529 05172 05178 05179 05183
05733 06674 06675 06740 07114 07160 07787 07788
07790 07792 07793 07800 07805 07806 07833
ABSORPTION,LIPID
00025* 00036 00040 00041 00186 00193 00274 00431*
00436* 00466 00499 00520* 00532 00535 00539 00554
00657 00893* 01037* 01041* 01042* 01046* 01051 01055
01056 01058 01059 01357* 01371 01372 01373 01374
01426* 01431 01439 01712 01737 01841* 01851 01852
01853 01985 01997 02027* 02154 02236* 02246 02364
02416* 02472* 02648 02726 02727 02747 02861 03022
03046 03049 03200 03397 03479* 03481* 03587 04327
04328 04355* 04559 04567 04832 04968 05166* 05170
05184 05198* 05373 05665* 05695 05730 06032 06256
06326 06452 06453 06485 06718* 07114 07226* 07787
07974
ABSORPTION,LIVER
06640
ABSORPTION,LIVER PROTEIN
07931
ABSORPTION,MAGNESIUM
00465 04265*
ABSORPTION,MANGANESE
06562
ABSORPTION,MINERAL
SEE TRACE ELEMENT AND MINERAL ABSORPTION
ABSORPTION,PHOSPHORUS
01313* 03999* 03965 05580
ABSORPTION,POTASSIUM
00030* 02130 02646 02667 03202 03362 04309* 04418*
05580 05841 06179 06979 07781*
ABSORPTION,PROTEIN
00002* 00033* 00551 01062 01438 01849* 02125 02236*
02763* 03022 03386 04320* 05730 06483 07445 07802
07828*
ABSORPTION,SMALL INTESTINE
00017 00023* 00025* 00026* 00027* 00031* 00033* 00034*
00036 00039 00042 00043 00061* 00194 00195 00220*
00275 00431* 00436* 00520* 00530* 00532 00538 00542
00546 00548 00550 00554 01036* 01038* 01039* 01040*
01041* 01043* 01044* 01047* 01048* 01049* 01050* 01053
01055 01056 01057 01058 01059 01060 01062 01063
01064 01176* 01183* 01351* 01353* 01357* 01370 01373
01374 01375 01426* 01434 01437 01438 01439 01760
01793 01829 01830 01835 01840* 01841* 01843* 01844*
01846* 01847* 01848* 01849* 01850* 01851 01852 01853
01854 01865* 02027* 02149* 02236* 02238* 02242 02640*
02642* 02647 02651 02689 02736* 02815 02823 02825
03039* 03040* 03041* 03044* 03048 03057 03423 03429
03460* 03479* 03480* 03481* 03482* 03485* 03486* 03487*
03488* 03492 03493 03494 03495 03498* 03523 03596*
03598 03601* 03705 03899 03960* 03962* 03965 03967
03968 04309* 04313* 04314* 04315* 04317* 04324* 04327
04328 04329 04331 04332 04334 04483* 04485* 04490*
04507* 04517 04566 04674* 04678 04755 05052 05090*
05154* 05156* 05158* 05160* 05162* 05163* 05169 05170
05172 05175 05178 05179 05183 05235* 05371 05374
05595* 05597* 05602* 05603* 05605* 05634 05657 05721*
05733 05736 05967 06259 06452 06453 06464* 06465*
06466* 06471* 06472* 06475* 06476* 06477* 06478* 06480*
06481* 06488 06489 06494 06670* 06674 06675 06679
06686* 06740 06864* 06979 07061* 07064* 07345 07719*
07728* 07735* 07753 07777* 07781* 07782* 07786* 07787
07792 07793 07795 07798 07803 07805 07806 07808
07828* 07833 07967 08283 08308 08424 08951
ABSORPTION,SODIUM
00030* 00603 00658 01186 01437 01849* 01878* 02646
03362 03423 04309* 04317* 05605* 06179 06979 07781*
ABSORPTION,STEROID
01176*
ABSORPTION,STOMACH
00025* 00032* 01045* 01046* 04326 04331 04332 04517
05155* 05165* 05177 06492 07828* 08154
ABSORPTION,STRONTIUM
06500
ABSORPTION,SUCROSE
05730 01745

ABSORPTION,THIAMINE
00040
ABSORPTION,TOXIC EFFECTS ON
01726* 07781*
ABSORPTION,TRACE ELEMENT AND MINERAL
00037 00040 00044 00465 00542 00887* 01047* 01842*
01843* 01849* 01878* 02255* 02405 02649 02651 02689
02788 02830 02942 02943 03040* 03137 03183 03208
03480* 03493 03498* 03598 03959* 03965 04100 04106
04117 04218 04319* 04333 04868* 05580 05730 06467*
06492 06740 07783* 08023 08637*
ABSORPTION,TRIGLYCERIDE
00036 00157 00191 00274 00893* 01046* 01056 01851
02648 02747 02801 03962* 04355* 05166* 05170 05198*
06045 06256 06485 06538 07065* 07089 07625 07891*
ABSORPTION,VITAMIN
00040 00088 00195 00520* 00530* 00540 00549 00552
00556 00558 00560 01044* 01052 01327 01852 02015*
02025* 02246 02247 02645 02650 03059 03209 05145
05517* 05602* 05729 05730 05869 07077 07639
ABSORPTION,VITAMIN A
SEE ALSO CAROTENE ABSORPTION
00558 02025* 02246 05158* 05166* 05211 06650
ABSORPTION,VITAMIN B COMPLEX
04999

ABSORPTION,VITAMIN B12
00088 00195 00393 00520* 00530* 00554 01054 01066
01327 01847* 01852 02015* 02109 02247 02645 03059
03523 04324* 04358* 05153 05165* 05517* 05526 05729
06465* 06471* 06864* 06866* 08301 03051 07639
ABSORPTION,VITAMIN C
01049*
ABSORPTION,VITAMIN D
00549 04330 05179
ABSORPTION,VITAMIN K
00549
ABSORPTION,WATER
00027* 00039 01052 01061 01063 01064 01259 01437
01760 01849* 02255* 02646 03423 04265* 04309* 04490*
04518 04830* 05603* 06498 06652 06653 07781*
ABSORPTION,XYLOSE
00262 00520* 00554 01215* 03200 03495 04317* 05154*
05395* 06481* 06767
ABSORPTION,ZINC
04868* 06638 06677
ACETYLCHOLINE
00006* 00056* 00057 00179* 00181* 00472* 01027 01033
01076 01174 01518 01682 03465* 03513* 04498*
ACHALASIA
00296 00337 00341 00342 01261 01273* 01283 01299
01300 01333 02061* 02065* 02212 02761* 02865* 02873
02879 03743 03764 03766 03769 03771 04336* 05435
05467* 05494 05507 06795* 06814 06827 06836 08073*
08080* 08084 08107
ACHLORHYDRIA
00196* 00221* 00302 00364* 00897* 01327 01903 02084
02117 02122 03490* 04656 05401* 05513* 05858 06708*
06864* 06913 07855* 08143*
ACID METABOLISM
01981
ACID PHOSPHATASE
00172 01161 01655* 01949 01950 02322* 02418* 03446*
04417* 04423* 04918 05133 06425 06672 06962 07366*
07953
ACID SECRETION,HORMONAL CONTROL OF STOMACH
01896*
ACID SECRETION,STOMACH
00005* 00007* 00013* 00051* 00068* 00071* 00072* 00073*
00074* 00075* 00076* 00077* 00078* 00079* 00080* 00081*
00082* 00083* 00084* 00085* 00086* 00090 00091 00093
00099* 00104* 00196* 00221* 00237* 00255 00302 00316*
00394 00395 00409 00411 00438* 00472* 00484 00496
00500 00503 00662* 00902* 01045* 01080* 01081* 01082*
01083* 01084* 01086* 01087* 01088* 01090* 01091* 01092*
01093* 01094* 01096* 01097* 01098 01099 01101 01102
01103 01107 01117* 01186 01202* 01216* 01249 01306*
01316* 01319* 01327 01389* 01390* 01394* 01397* 01401
01405 01406 01412 01419 01528 01726* 01752 01766
01774 01861* 01869* 01875* 01876* 01877* 01878* 01879*
01880* 01881* 01882* 01883* 01884* 01885* 01887* 01888*
01889* 01890* 01891* 01892* 01893* 01894* 01896* 01897*
01899 01903 01904 01905 02031* 02033* 02055 02106*
02113 02117 02118 02189* 02214 02223 02604 02605
02670* 02671* 02673* 02674* 02676* 02678* 02679* 02683*
02684* 02686 02688 02761* 02780 02817 02818 02912*
02964* 02998* 02999* 03000* 03001* 03003* 03012* 03015*
03019 03022 03023 03323* 03462* 03508* 03510* 03513*
03516* 03519 03522 03626 03644 03832 04352* 04354*
04360* 04362* 04364* 04366* 04369 04371 04373 04375
04380 04381 04484* 04556* 04581 04634 04646 04656
04707* 04715* 04721 04724 05019 05155* 05169 05184
05223* 05226* 05227* 05232* 05233* 05234* 05237* 05238*
05241 05246 05247 05248 05250 05251 05252 05386
05406* 05416 05513* 05582 05590 05692 05877 06076*
ACID SECRETION,STOMACH
CONTINUED
06408* 06503* 06530* 06531* 06534* 06537* 06538 06539
06543 06544 06549 06555* 06560 06708* 06709* 06733
06766 06799* 06865* 06913 06925 07022 07044 07053
07408 07609 07625 07834* 07835* 07839* 07842* 07843*
07844* 07845* 07846* 07849* 07851* 07852* 07853* 07854*
07855* 07856* 07860 07869* 08020 08141* 08143* 08226
08243 08326* 08338* 08360 08396 08584 08905
ACID SYNTHESIS,FATTY
01968 04454
ACID SYNTHESIS,LIVER NUCLEIC
07242* 07366*
ACIDOSIS
00465 00546 00658 00674 00749 00753 00971 00981
01546* 01549* 01564 02384 02390 02752 03434 06007
06359 07666 08225 08379 08806

ACUTE ABDOMEN
00581 00952 01458 01768 01777 02152 02181 02577
02959* 03875 04010 04793 04901 05394* 05505 05705
05871 06054* 06340 07176 07637 07642 08031 08259
08581 08909
ACUTE ABDOMEN DIAGNOSIS
00257 00901* 01252 01466 01473 01779 01788 01811
02036 02858 03412 03625 03894 04264 04541* 05394*
05785 06304 06318 06374 06725 07178 07511 07666
08032 08049 08178 08182 08456 08588 08923 08937
ACUTE ABDOMEN ETIOLOGY
01349* 06304
ACUTE ABDOMEN IN CHILDREN
00485 00975 01779 01788 01811 06368 08956 06304
ACUTE APPENDICITIS
05751 08494 08496
ACUTE HEPATITIS
00213* 00250 00294 00701* 00722 00757 01551* 01627*
01634 01635 01642 01645 01648* 02008* 02012* 02019*
02453* 02481 03221* 03232* 03244 03451* 03706 04130
04141 04929 04942 05105* 05323 05965 05980 05988
06060 06062 06118 07246* 07252* 07257* 07292 07663
08641* 08645 08673
ACUTE PANCREATITIS
00274 00342 00662* 00663* 00664* 00665* 00666* 00668*
00669 00670 00671 00672 00673 00676 00902* 01516*
01518 01521 01522 01523 01524 01525 01527 01529
01531 01532 02047 02060 02320* 02321* 02322* 02323*
02324* 02326* 02327 02328 02331 02334 02336 02339
02511 02691* 02692* 03129* 03138 03144* 03147* 03148*
03149* 03153 04069* 04072 04073 04074 04076 04078
04264 04368* 04388* 04390* 04845 04853* 05260* 05418
05856 05882* 05883* 05884* 05885 05886 05888 05889
05890 05891 05892 05895 05896 05900 05902 06192
07194* 07213* 07215 07220 07221 07223 07225 07503
07519 08214 08562* 08574 08593 08594* 08595* 08596*
08597* 08598* 08600* 08603 08604 08606 08607 08608
08610 08611 08614 08615 08616 08617 08856
ACUTE PANCREATITIS ETIOLOGY
05258*
ACUTE PANCREATITIS PATHOPHYSIOLOGY
08599*
ACUTE PERITONITIS
08033
ACUTE VIRAL HEPATITIS
00232* 00792* 00793* 00800 00808 01221 01642 02356
02452* 02460* 02468 02787 03240* 04140 04147 04562
05131 07391* 07394* 07395* 07411 07417 07452 08752*
08753* 08779
ADENOCARCINOMA
00370* 00427 00609 00611 00616 00624 00636 00660
00874 00979 01282 01382 01448* 01609 01934 02229
02270 02314 02422 02896 03038 03087 03291 03303
03472 03637 03808 03819 03857 04036 04162 04188
04212 04218 04503* 04660 04662 04941 05639 05817
06862* 06907 07119 08300 08534 08436*

ADENOMA
00591 00611 00868 00949 00979 01569 01609 01766
01934 02274 02610 02614 03378 03824 03848 03908
04033 04212 04861* 05643 05813 05819 05870 06009
07212 08323 08580 08889
ADHESIONS
00425 00443 00447 00998 01001 01002 01258 01355*
01363 01366 01468 01710 01751 01805 01806 02597
02602 02791 02916 02962* 03330 06335 08257*

ADHESIVES,TISSUE
01722* 03128*
ADRENAL GLANDS
00114* 00141* 00476* 00517 00534 00628* 00916 00927
01140* 01141* 01157 01164 01514 01639 01754 02122
02187* 02206 02213 02559 02717 03002* 03137 05601*

ADRENAL GLANDS
CONTINUED
05693 05752 06119 06317 06377 06647 07631 08356
08393 08874
ADRENERGIC AGENTS
00162 05232* 05239
AFFERENT LOOP SYNDROME,GASTRECTOMY-INDUCED
00360* 00368* 00425 00428 00440* 04655 05688 07812*
08138*
AFLATOXIN
SEE ALSO LIVER CARCINOGENESIS
SEE ALSO STOMACH CARCINOGENESIS
00782 01624 01926* 02436 04496* 04503* 04862* 05311
05928 06648 08734*
AGE EFFECTS ON ABDOMEN
00983
AGE EFFECTS ON ABSORPTION
00040 04315*
AGE EFFECTS ON BILIARY TRACT
02302*
AGE EFFECTS ON ESOPHAGUS
06857
AGE EFFECTS ON GALLBLADDER
01704
AGE EFFECTS ON GASTROINTESTINAL TRACT
02589 04539 05026* 07984 08508
AGE EFFECTS ON LARGE INTESTINE
01368 07102* 08435*
AGE EFFECTS ON LIVER
00143 00695* 00796 01019* 01029 01130* 01135* 02492
03195 03475 03556* 04286 04427* 04437 04480 05100*
05109* 05912* 06435 06580* 06649 07243* 07881* 07916
AGE EFFECTS ON PANCREAS
01011* 02302*
AGE EFFECTS ON RECTUM
02293 03106 03976*
AGE EFFECTS ON SMALL INTESTINE
00014* 00429* 01016* 01031 01033 01038* 01368 03895
04675*
AGE EFFECTS ON STOMACH
00085* 00396 01033 04274* 04629* 06857
AGE FACTORS
00180* 00490 00877 01451* 01496* 02131 02140 02218
02287 02376 02402 02523 02529 02607 02751 02838
02884 02893 02934 02938 02939 02951 02984 02989
02995 03013* 03027 03046 03065* 03139 03175 03251
03271 03310 03405 03408 03442 03461* 03471 03484
03770 03788 03859 03861 03872 03957 03994 04004
04032 04036 04108 04109 04234 04259 04341 04368
04635 04660 04769 04917 04989 05076 05131 05287*
05561 05760 05788 05794 06207 06243 06261 06271
06278 06305 06313 06364 06440 06446 06458 06460
06528 06580* 06614 06622 06808 06930 06931 07014*
07121 07123 07181 07325 07368* 07547 07664 07665
07670 07671 07678 07684 07686 07687 07688 07689
07690 07702 08015 08364 08365 08467 08699 08845
08861 08877 08910 08911 08925 08967 08989
AGE FACTORS IN APPENDICITIS
05742* 05805
AGE FACTORS IN CANCER
00604 00683* 01448* 02955 03173 03753 03800* 04274*
04622* 04871* 05010 05088 06230* 07127 07540 08177
08722
AGE FACTORS IN CHOLELITHIASIS
06143 06155
AGE FACTORS IN CIRRHOSIS
00699* 08811

AGE FACTORS IN HEPATITIS
00792* 00794* 00796 02453* 02454* 02462 07254* 08368
AGE FACTORS IN MALABSORPTION 05931
00526* 07064*
AGE FACTORS IN PEPTIC ULCERS
03016* 03024 03033 08346
AGE FACTORS IN ULCERS
01405 02195* 08368

ALBUMIN
SEE ALSO LIVER
SEE ALSO PLASMA PROTEINS
00197* 00200* 00821* 01936 01963 02721 03249 03386
03595* 05426 05904* 05940 07381 07602
ALCOHOL
SEE ALSO FATTY LIVER
SEE ALSO PANCREATITIS
00884* 01786 01875* 01877* 01980 02097* 02488 02776
03272 03279 03280 03318* 03461* 04142 04254 04597*
04625* 05329 05514* 06656 06810 07206 07541 08795
08822
ALCOHOL ABSORPTION
02715 03572 05155* 05209 06100* 06643 07792
ALCOHOL EFFECTS ON LIVER
00147 00158 00173 00176 00701* 00768* 01121* 01164
01618 01648* 01700 01768 01921* 01925* 01972 02004*
02416* 02423 02427 02431 02435 02455* 02474* 02476*
02481 02492 02700* 02719 02811 03218* 03221* 03260*
03271 03447* 03464* 03545* 03572 03682 04100 04102
04125 04130 04150* 04151* 04156* 04163 04164 04308
04404* 04502* 04960* 04968 05145 05209 05276* 05291*
05669* 05934 05984 06053* 06065 06066 06092* 06098*
06100* 06108 06110 06117 06122 06125 06367 06578*
06629 06643 06780 07369* 07375 07382 07384 07433
07435 07440 07441 07453 07455 07456 07457 07463
07875 07877* 07880* 07894* 08669 08744 08782* 08788*
08796 08797 08799 08800 08804 07377
ALCOHOL EFFECTS ON PANCREAS
01528
ALCOHOL EFFECTS ON SMALL INTESTINE
01987*
ALCOHOL IN CIRRHOSIS
00173 00750 01562 01605 01665 01674 01721* 02473*
02489 03208 03269 03271 04125 04150* 04155* 04502*
04882 04960* 04968 06092* 06096* 06105 06125 07369*
07384 07433 07441 07463 08781* 08786* 08806 08817
ALCOHOL METABOLISM 07257*
06521

ALCOHOLIC PANCREATITIS
00669 00676 01112* 01517* 01528 03151 04070* 04075
08601*
ALCOHOLIC STEATOSIS
00840 01543* 01921* 01925* 02416* 02806 02807 02814
04102 04125 04311* 05963 06125 07456 08796 08800

ALKALINE PHOSPHATASE
00002* 00065* 00234* 00267 00528* 00545 00683* 00772*
00889* 00991 01008* 01017* 01119* 01205* 01209* 01247
01313* 01598 02012* 02034* 02322* 02341* 02418* 02641*
02718 02813 02851 03214 03215 03565 03619* 03801*
03959* 04090* 04440 04545* 04861* 04905 05208* 05313
05937 06054* 06123 06486 06672 06677 06769 06962
06966 07366* 07965* 08008* 08638* 08698 08753* 01987*
ALKALOSIS 02056
00674 00818* 01654* 08806
ALLERGIES
SEE ALSO IMMUNOLOGY
03952* 04202*
AMEBIASIS
00625 00929 02543* 03060* 03179 03424 03879 03985
04020 04108 04563 04863* 04878* 05750 06003 06774
07594 07715 08725 08982
AMEBIASIS DIAGNOSIS
01230 01554* 01770 02052 02354 03220* 03404 03705
04014 04863* 05035 05391* 05403* 05792 06748 07173
07302 07580 08476 08952
AMEBIASIS EFFECTS ON LIVER
00723 00728 00824* 00926 01230 01554* 01601 01728*
01761 02433 03201 03216 03220* 04896 04930 04943
05044 05403* 07240* 07580 07634 08133 08624*
AMEBIASIS EPIDEMIOLOGY
00988 01264 01761 01770 03404 06383 07302 07580
08950
AMEBIASIS ETIOLOGY
00988 01770 04896
AMEBIASIS IMMUNOLOGY
01230 01728* 05044 05391* 07302
AMEBIASIS IN CHILDREN
00723 04205* 06366 07706
AMEBIASIS PATHOLOGY
00988 04014
AMEBIASIS TREATMENT
00926 00964 01230 01554* 01601 01622 01731* 01761
01763 01770 01801 02354 02433 03345 03359 03602*
04014 04194* 04205* 04247 04255 04523 04896 05035
05070 05077 05079 05081 05759 06366 06383 07240*
07302 07565 07573 07580 07608 07653 07706 08378
08933 09013 09028
AMINO ACID ABSORPTION
SEE ALSO PROTEIN ABSORPTION
00023* 00026* 00033* 00546 00548 01038* 01050* 01052
01062 01351* 01845* 01848* 01850* 01856 02378 02729
02737* 02738* 03446* 04315* 04325 04483* 04485* 05145
05163* 06472* 06477* 06483 06523 07782* 07828* 07868*
AMINO ACID METABOLISM
00127* 00152 00162 00165 00481* 00548 00990 01111*
01133* 01144* 01150* 01159 01169 01589 01647* 01741
01803 01845* 01917 01935 01948 01956 01966 01973
01975 02363 02573 02682* 02713 02714 02723 02725
03235* 03514* 04261 04325 04347* 04349* 04367 04459
04485* 05163* 05175 05262* 05278* 05350 05371 06646
07068* 07199 07231* 07264 07527* 07868* 07920 08287
08678 08680 08709 08728*

AMINO ACID METABOLISM,LIVER
00111* 00120* 00139* 00745 01128* 01134* 01158 03261*
03446* 04886 05288* 06484 06565* 07264 07886*
AMINO ACIDS
00828* 03558 03573 04358* 05136 05590 06596* 07461
AMINOPEPTIDASE,LEUCINE
00234* 01205* 03621

AMMONIA
00927 04366* 04367
AMMONIA ABSORPTION
01588 02003* 02831
AMMONIA EXCRETION
03554* 04256
AMMONIA EXCRETION,LIVER
00295 00745 00752 00835 01150* 01171 01547* 01550*
01590 01654* 01973 02001* 02003* 02355 02502* 02720
02827 03213 03478* 03554* 04087* 04321* 04430* 04536
07877* 08618* 08678 08680 08681
AMPULLA OF VATER
SEE ALSO BILIARY TRACT
00639* 00660 00857 00861 01025* 01676* 01679* 01697
01710 01718 02302* 02307 02499* 02507 02524 02789
03144* 03189 03190 03282* 03303 04053* 04688 05003
05004 05137 06165 06168 06175 06192 07516 08563*
08576 08858
AMYLASE
SEE ALSO PANCREAS
00092 00209* 00672 00675 00992 01114 01517* 01816*
01910* 02047 02325* 02326* 04073 05260* 05263* 05785
06557 06563 07609 08008*

AMYLASE SECRETION,PANCREAS
00062* 00094* 00099* 00100* 00102* 00106 00206* 00645*
01111* 01113* 01143* 01910* 01914 02005* 02059 02303*
02330 03131* 03135 03266* 03527* 03529* 03674 04075
04150* 04385* 04389* 04391 04393 04394 04842 04944*
05208* 05263* 05519* 05873 05877 05879 05886 06550*
06552* 06558 07219 07536* 07867* 08590 08597* 08604
05260*
AMYLASE,SERUM
05422 05431
AMYLOIDOSIS
00393 00709* 01602 01732* 01762 02595 02977 03185
03437 03440 04290 05723 05765 05954 06225* 06267
06317 06333 07585 07590
ANAL NEOPLASMS,MALIGNANT
07124
ANALEPTICS
01113*
ANASTOMOSIS
00328 00349 00350 00463 00589 00590 00634 00654
00656 00995 01371 01372 01373 01374 01386 01483
01511 01515 01586 01673 01676* 01712 01718 01722*
01807 01835 02124 02159 02165 02173 02178 02179
02181 02184 02225 02309 02312 02313 02365 02409
02522 02552* 02598 02848 02881 02885 02956 02962*
02984 03032 03051 03100 03102 03139 03302 03305
03315* 03338 03392 03396 03698 03756 03778 03815
03834 03843 03906 03938 04011 04013 04049 04062
04182 04632* 04686 04705 04747 04765* 04780 04785
04860* 04962* 04964* 04965* 04967 04970 04974 04988
04996 05012 05331 05444 05474 05477 05498 05548
05555 05568 05593 05628 05654 05698 05753 05799
05835 06002 06039 06124 06144 06146 06175 06187
06212 06213 06217 06252 06265 06308 06330 06334
06338 06844 06851 06885 07018 07029 07083 07166
07335 07343 07357 07443 07504 07713 07981 08066*
08070* 08162 08188 08203 08310 08340 08365 08373
08618* 08789 08791 08798 08873 09016
ANASTOMOTIC PEPTIC ULCERS
00417 00468* 00493 00507 02098* 05673 07008*
ANASTOMOTIC ULCERS
01251
ANEMIA
SEE ALSO FOLIC ACID
SEE ALSO LIVER DISEASES
SEE ALSO MALABSORPTION TREATMENT
SEE ALSO VITAMIN B12
00195 00393 00456 00531 00603 00880 00916 00980
01288 01755 01764 02133 02232 02358 02493 02645
02650 02802 02830 02938 02976 03209 03272 03276
03523 03804 03805 03806 03658 03929 04600* 04689
04896 05325 05529 05616 05803 05986 06708* 06866*
07587 07662 07929 08762 08770
ANEMIA IN MALABSORPTION
00552 00557 00558 02015* 02586 05729 07081
ANEMIA,APLASTIC
02437 04910
ANEMIA,GASTRECTOMY-INDUCED
00360* 01318* 02015* 02108 05212 06866* 08027
ANEMIA,HEMOLYTIC
00200* 00805 01564 01618 01940 02367 02437 02481
04140 04959 05128 05212 06080 06083 06094* 06464*
06875 07449 08027

ANEMIA,IRON-DEFICIENCY
00365* 00552 00709* 00887* 01047* 01048* 01053 01327
01435 02643* 04654 04792 04835 06464* 06837 07234*
07440 07695 08023 02108 05169 05715
ANEMIA,PERNICIOUS
00357* 00365* 00709* 01054 01884* 02015* 02109 02122
03014* 03490* 03814 03839 03840 05093* 05094* 05111*
05165* 05401* 05521* 06464* 06708* 06709* 06864* 06866*
06886 06887 06906 07959* 08190 08197 08239 08988
ANESTHESIA
00149 00877 01239 01488 01546* 02002* 02451 02542*
02688 03420 04227 04341 04783 04914 05815 06169
06820 07330 07367* 07957 08098 08647 08720 09025
ANESTHESIA IN ENDOSCOPY
01269
ANESTHETICS IN LIVER INJURIES
00131* 00770* 00787 00790 00791 01165 02438 02451
04494* 05132 06059 07368* 08737 08748
ANEURYSMS
01301 01485 05566 05607
ANEURYSMS,AORTIC
04530 05647
ANGINA
00335
ANGINA,ABDOMEN
SEE ALSO MESENTERY VASCULAR DISEASES
01207* 01487 01777 07542 07628

ANGIOGRAPHY
04531 08000*
ANGIOGRAPHY IN CANCER DIAGNOSIS
02134 02366 03637 03647
ANGIOGRAPHY,ABDOMEN
00228* 00273 00348 00738 01268 01668 01777 02032*
02775 02859 03637 03701 04588 05436 05461 07291
08011
ANGIOGRAPHY,BILIARY TRACT
01560 03285* 04176* 04177* 04985* 06418 07479
ANGIOGRAPHY,ESOPHAGUS
04618
ANGIOGRAPHY,GALLBLADDER
03311
ANGIOGRAPHY,GASTROINTESTINAL
00240 00250 00923 00949 00962 01236 01260 01446*
02017* 02048 02849 02855 03639 03675 05397* 05436
05447 05448 05515* 05929 06250 06715* 07531* 07639
08059 06354
ANGIOGRAPHY,LARGE INTESTINE
00203* 00207* 00348 01263 02265 07531* 08509
ANGIOGRAPHY,LIVER
00204* 00244 00260 00273 00957 01224 01248 01253
01781 01805 02009* 02010* 02049 02349* 02350* 02630
02819 02821 02848 03175 03702 04096 04210 04551*
04872* 04875* 05385 05463 05487 05906* 05914* 06028
06044 06104 06706 06744 07235* 07239* 07241* 07305
07983 08036 08037 08038 08787* 06042 06354
ANGIOGRAPHY,MESENTERY
00214* 00456 03637 03698 03872 04250 06101* 06341
07291 07999* 08855
ANGIOGRAPHY,PANCREAS
00199* 00208* 00949 02039 02614 02795 03138 03153
06354 07209 08579
ANGIOGRAPHY,SMALL INTESTINE
06964 06982 07531*
ANGIOGRAPHY,STOMACH
00369* 02134 06698 07531*

ANGIOMA
01465 01568 03173 04894 05803 06113 07342
ANICTERIC HEPATITIS
04904 04953 08751*
ANOMALIES,ABDOMEN
01798 03314* 04238 05811 05811 08315 08830* 09007
ANOMALIES,ANUS
00059 00567* 00582 01470 02612 03071* 03660 03703
04035 04768 04806 07097* 08440*
ANOMALIES,BILIARY TRACT
00301 00849* 00876 00882 01544* 01549* 01553* 02043
02050 02359 02367 02500* 02511 02517 02921 03168*
03288* 04836 04837 04991 05005 05013 06009 06146
06153 06156 06157 06417 07469* 07502 07989* 08684
08851 08669
ANOMALIES,CONGENITAL
00326 00327 00331 00343 00350 00412 00546 00590
00553 00560 00567* 00582 00619 00621 00626 00650
00713 00730 00758 00882 00924 01256 01261 01286
01295 01296 01322 01341 01358 01362 01365 01436
01456 01470 01475 01511 01544* 01549* 01560 01777
01778 01798 01811 01831 02017* 02043 02063* 02068
02069 02072 02073 02076 02079 02080 02136 02142

ANOMALIES,CONGENITAL
CONTINUED
02145* 02155 02168 02181 02243 02250 02357 02359
02367 02374 02458* 02500* 02560 02561 02573 02612
02876 02877 02887 02916 02963* 02979 02989 02990
02994 03055 03057 03071* 03084* 03086 03140 03168*
03183 03196 03288* 03294 03298 03344 03346 03435
03484 03656 03703 03751 03760 03787 03825 03829
03837 03841 03847 03878 03881 03890 03984 03991
03994 04011 04021 04030 04032 04035 04055 04062
04238 04638 04640 04653 04676* 04677 04682 04685
04775 04808 04813 04837 04841 04900 04907 05005
05476 05478 05500 05565 05587 05607 05726 05736
05748 05761 05766 05781 05811 05811 05813 05814
05819 05874 05956 06009 06038 06042 06140 06146
06157 06194 06195 06198 06268 06313 06358 06763
06802 06805 06827 06842 06874 06888 06916 06945*
06949 06950 06971 06972 06974 07074 07097* 07117
07123 07130 07134 07154 07206 07295 07309 07477
07543 07587 07606 07640 07656 07971* 08079* 08081
08129 08131 08250* 08254* 08258 08272 08316 08319
08440* 08465 08466 08482 08492 08502 08567 08940
08946 08991 09007
ANOMALIES,DUODENUM
01260 01365 02917 04638 08267 08292 08319
ANOMALIES,ESOPHAGUS
00085* 00319* 00327 00333 00339 00342 00343 01261
01279* 01286 01295 01296 02063* 02073 02076 02080
02093 02096 02876 02877 03071* 03751 03752 03769
03786 03787 03788 03789 04618 05480 05511 06368
06802 06805 06807 06818 06838 06842 08081 08094
08095 08097 08098 08129 08131 08987
ANOMALIES,GALLBLADDER
00270 00882 01512 01686 02508 02518 03294 03298
03308 04170* 04836 04991 05124 06157 06221 07514
08869
ANOMALIES,GASTROINTESTINAL
01341 01798 02181 02549* 04238 06358 07543 07640
08182
ANOMALIES,GASTROINTESTINAL TRACT
00350 02916 02917 04638
ANOMALIES,LARGE INTESTINE
00445 00574 00582 00603 00619 00621 01456 01475
02253* 02257 02295 03086 03092 03484 03760 03984
03994 03995 04002 04021 04030 04035 04775 04776
04785 04811 05399* 05766 05781 05821 05822 06358
07113 07121 07122 07123 07138 07148 07161 07176
08310 08482 08502 09030
ANOMALIES,LIVER
01545* 02349* 02412 03196 04120 05124 05956 07312
08185 08652 08684
ANOMALIES,MESENTERY
08313 08940
ANOMALIES,PANCREAS
00208* 00646 00650 01505* 01511 01512 02155 02305
03140 04053* 04055 04062 04190* 04391 04830* 05874
05899 07154 08593
ANOMALIES,RECTUM
00293 00567* 00582 01470 01475 01481 03071* 03991
04768 04806 07122 08440* 08490 08499 08553
ANOMALIES,SALIVARY GLAND
03700

ANOMALIES,SMALL INTESTINE
00437* 00445 00459 00550 00554 00555 00556 00646
00650 01322 01358 01362 01363 01385 01512 01831
02142 02145* 02166 02168 02572 02971 02990 03344
03346 03484 03705 03875 03881 03883 03890 03895
03899 04680 04684 04685 05615 05764 06268 06949
06988 07154 08250* 08282 08299 08306 08310 08938
09030 02155
ANOMALIES,STOMACH
00217* 00408 00413 01322 01512 02076 02136 02142
02575 02916 03656 03829 03837 03841 03847 04638
04640 04653 05500 05587
ANOMALY,BILIARY TRACT
06570*
ANOMLAIES,CONGENITAL
06196
ANORECTAL FISTULAS
01489
ANORECTAL SURGERY
01464 01470 01489 02612 03991 04767 04768 04798
ANOREXIA NERVOSA
00413 00922 01515 02574
ANTACIDS
00477* 00487 00518 01409 02210 03832 03941 05248
05670 05702 05715 06544 06897 07053 07054
ANTHRAX
00460
ANTIBIOTICS
00028* 00042 00043 00432* 00433* 00460 00479* 00529*
00530* 00543 00573 00664* 00741 00757 00860 00883*
00894* 00912 00920 00924 00927 00932 00935 00947
00965 00970 00974 00983 01393* 01433 01454* 01474
ANTIBIOTICS
CONTINUED
01523 01546* 01607* 01634 01654* 01720* 01729* 01734*
01759 01765 01783 01784 01785 01797 01812 01915
01926* 01976 02127 02362 02372 02379 02396 02397
02422 02450 02483 02501* 02502* 02505* 02548* 02550*
02580 02652* 02751 02886 03043* 03047 03058 03059
03062* 03091 03296 03313* 03316* 03349 03373 03374
03380 03390 03424 03539* 03980 04028 04214 04226
04239 04245 04255 04422* 04470 04514 04523 04939
05021* 05048 05070 05077 05419 05468* 05668* 05728
05742* 05769 05777 05820 05846 05872 05875 05926*
05958 06187 06247 06272 06275 06319 06338 06343
06365 06373 06390 06626 06752 06771 07370* 07416
07466* 07484 07518 07521* 07563 07573 07706 07749
07871 07945 07950 07982 08252* 08418 08454 08462
08515 08685 08901 08933 08975
ANTIBIOTICS IN LIVER INJURIES
00113* 01167 01562 02363 02378 02386
ANTIBIOTICS IN MALABSORPTION TREATMENT
00555 00556 00557 02242 03058 05732 07092
ANTIBODIES
04202*
ANTIBODY,GASTRIC PARIETAL-CELL
03839
ANTIBODY,INTRINSIC FACTOR
00357* 01884* 02109 05521*
ANTICHOLINERGIC AGENTS
00050* 00052* 00057 00061* 00102* 00471* 00512 01068*
01075* 01103 01870 02331 02660 02902* 02998* 03365
04359* 04379 05252 05707 05829 06324 07850* 08360
08978 02337 05243

ANTICOAGULANTS
01721*
ANTIEMETICS
SEE ALSO VOMITING
06254
ANTIMETABOLITES
00829* 00833 00836 01049* 01050* 01121* 01158 01330
01542* 01578 01616 01651* 01807 01951 01971 02544*
03371 04239 04455 05306 07870
ANTIOXIDANTS
02417*
ANTISECRETORY AGENTS
01091* 01092* 01093* 01094* 02678* 02899* 02998* 02999*
03000* 03001* 03003* 03025 03323* 03520 03934 03935
03936 03939 03940
ANTISPASMODICS
01003 02044 02210 02506* 03001* 03323* 03365 03496*
05203 06298 06299 07635 09028
ANTRECTOMY
00479* 00480* 01091* 01254 01294 01396* 01398* 01419
01880* 02192* 02194* 02197* 02201 03512* 03757 07852*
08387
ANTRUM,PYLORIC
00005* 00050* 00051* 00082* 00084* 00217* 00359* 00377
00378 00491 01072* 01100 01117* 01193* 01198* 01309*
01818* 01875* 01877* 01879* 03008* 03499 03522 03644
04339* 04648 05186* 05199 05227* 05583 05587 05883*
06874 06883 06894 06895 06934 07044 07815* 07838*
08244*
ANUS
02291 03115 04774 07116
ANUS ANOMALIES
00059 00567* 00582 01470 02612 03071* 03660 03703
04035 04768 04806 07097* 08440*
ANUS BIOPSY
02280 03990 04003
ANUS CANCER
00604 00605 00611 00623 02280 03077* 04003 07124
08050
ANUS DIAGNOSIS
00606 01214* 01477 02280 03099 03703 04003 07097*
08531
ANUS DISEASE ETIOLOGY
01477
ANUS DISEASES
00606 00615 01460 01464 02608 03099 03101 03990
04003 04007 04779
ANUS FISSURES
01477 05815
ANUS FISTULAS
00623 01460 01462 02260 04779 04786 05715 07097*
08455 08485
ANUS HISTOLOGY
01477
ANUS IN CHILDREN
00582 02612 03990 05803 07097* 07154
ANUS MORPHOLOGY
01818* 04340
ANUS MOTILITY
00059 04340

ANUS MUCOSA
02276 02280
ANUS NEOPLASMS
01488 07145
ANUS NEOPLASMS,MALIGNANT
00615 03077* 04004 05769 07124
ANUS PATHOLOGY
00615 03099 04007 08513 08527
ANUS RADIOLOGY
SEE ALSO ANUS DIAGNOSIS
01214* 03703 04340 07097* 08440*
ANUS SPHINCTER
00059 00567* 00602 01214* 01477 01489 01818* 02263
02271 03106 03119* 03660 03991 04340 04786 04787
04798 05815 08483 08527
ANUS SURGERY
00567* 01460 01477 02260 02276 02280 02291 02292
02296 03101 04001 04003 04779 04788 05808 05815
07097* 07109 07159 08451 08455 08485
ANUS TREATMENT
01477 01488 05808
ANUS,NERVOUS CONTROL OF
01818* 02263 02612 03106 08483
AORTIC ANEURYSMS
04530 05647
AORTIC SURGERY
04530

APLASTIC ANEMIA
02437 04910
APPENDICITIS
00522 00581 00614 00617 00618 00690* 00972 01252
01287 01349* 01446* 01458 01466 01473 01474 01479
01746 02036 02514 02574 02974 03063* 03090 03091
03096 03113 03638 03874 03913 04017 04025 04032
04040 04541* 04698 04702 04766* 04793 04809 04810
04812 05617 05763 05766 05771 05775 05781 05795
05818 05829 06266 06340 06725 07125 07131 07135
07146 07161 07165 07168 07483 07637 08461 08470
08478 08481 08508 08511 08516 08520 08521 08524
08537 08539 08540 08542 08674 08984 08986
APPENDICITIS COMPLICATIONS
04766* 05742* 05758
APPENDICITIS DIAGNOSIS
05758
APPENDICITIS EPIDEMIOLOGY
04766* 08442*
APPENDICITIS ETIOLOGY
05770
APPENDICITIS IN CHILDREN
01779 02826 03329 03346 04030 04568 04741 04784
04807 04808 05065 08442* 08474 08496 08956 06368
APPENDICITIS TREATMENT
05742*
APPENDICITIS,ACUTE
05751 08494 08496
APPENDICITIS,AGE FACTORS IN
05742* 05805
APPENDIX
00626 01446* 01468 01479 02277 02596 03075* 03090
03091 03096 03112 03377 03476 03807 03993 04005
04021 04775 05142 05651 05766 05784 05795 05801
05820 05822 06434 07121 07131 07146 07147 07161
07564 07632 08449 08453 08489 08493 08501 08502
08522
APPENDIX CANCER
04763*
APPENDIX CYSTS
02285
APPENDIX IN CHILDREN
02284 04762* 05771
APPENDIX NEOPLASMS
02284 05770
APPENDIX SURGERY
01447* 01474 04763* 05768 05774 05775 07100* 07181
08474
APPETITE
00922 07595

ARGYROPHIL CELLS
01814* 01815*
ARTERIOPORTAL SHUNT
06684*
ARTERIOSCLEROSIS
07974
ARTESIA,SMALL INTESTINE
03912
ASCITES
SEE ALSO CIRRHOSIS
00155 00272 00279 00551 00641* 00711 00726 00827*
00837 01196* 01518 01540* 01575 01652* 01753 01932
01933 02330 02338 02355 02381 02384 02496 02776
02824 03151 03198 03202 03275 03401 03565 03890
04105 04110 04117 04160 04252 04882 04922 04923
ASCITES
CONTINUED
04979 05818 05919* 05954 06025 06045 06120 06232*
06700 06811 07313 07371* 07423* 07443 07447 07602
07768 08560* 08590 08629* 08802 08818
ASCITES IN CIRRHOSIS
00750 00819* 00821* 00830 00834 00836 00838 00843
01215* 01588 01648* 01650* 01656 01660 01661 01662
01663 01665 01669 01934 02382 02470* 02471* 02474*
02482 02495 02797 03259* 04162 04964* 04967 04973
04975 04978 05234* 05926* 06028 06060 06067 06096*
07423* 07442 08784*
ASCITES TREATMENT
04975

ASSOICATED WITH VIRAL HEPATITIS,DISEASES
06080
ATHEROSCLEROSIS
01371 01372 01665 01712 01983 02364 02731 02983
02997 04977 08994

ATRESIA,BILIARY TRACT
03288* 08828*
ATRESIA,ESOPHAGUS
00331 00339 00350 00972 01295 01296 02893 03774
05007 05478 06265 06802 07154 07543 08062* 08066*
08077* 08081 08098 06820 05477
ATRESIA,LARGE INTESTINE
03084* 05753 08266
ATRESIA,SMALL INTESTINE
08273

ATROPHIC GASTRITIS
00092 00236* 00371* 00373 00404 01416 01884* 02122
02931 03009* 03461* 03490* 03503* 03840 05227* 05521*
06076* 06709* 06906 08239 08446*
ATROPINE
00052* 00054* 01068* 03465* 05232*
AUTONOMIC NERVOUS SYSTEM
00046* 00474* 00492 00941 00977 01013* 01024* 01067*
01126* 01283 01314* 01530 01857* 02865* 02973 03060*
03109 03933 04006 04789 06314 06317 06498 06518
07631 07824

BACTERIA
SEE ALSO MICROORGANISMS
01454* 01607* 01731* 02242 02372 02567 03316* 05098*
05368* 05739* 05855 05916* 06127* 06263 06373 06397*
07098* 07255* 08730*
BACTERIAL TOXINS
03384 04214
BALANCE STUDIES,METABOLIC
02665 05727 05841

BANTIS DISEASE
00809 00837 01655* 01663 02050 03273 05995 07371*
08659 08925 05980

BENIGN ABDOMEN NEOPLASMS
03070* 09008

BENIGN BILIARY TRACT NEOPLASMS
00857 03310 06168 06184 07504 08889 06195
BENIGN DUODENUM NEOPLASMS
02987 05643 06958 06967 08296
BENIGN ESOPHAGUS NEOPLASMS
00318* 02822 03655 03732* 03736* 03742 03747 05434
05485 06797* 06846 08106
BENIGN GALLBLADDER NEOPLASMS
00858 00868 01463 02525 06191 06212 07476 08882
BENIGN GASTROINTESTINAL NEOPLASMS
00942 01463 02551* 02786 03369 07532* 07649 08591
BENIGN LARGE INTESTINE NEOPLASMS
00578 00579 00588 00591 00592 01463 01465 02250*
03094 03107 03987 03988 04015 04016 04694 04771
04780 04791 05393* 05776 05813 07137 07141 08535
BENIGN LIVER NEOPLASMS
00727 02366 03664 04083* 04108 04881 04894 06014
06038 06992 08699
BENIGN MESENTERY NEOPLASMS
03418 08523
BENIGN PANCREAS NEOPLASMS
01515 02614 05871 08580 08587 08588
BENIGN RECTUM NEOPLASMS
00613 01463 01465 04022 04791 05393* 07143

BENIGN SALIVARY GLAND NEOPLASMS
08930
BENIGN SMALL INTESTINE NEOPLASMS
00376 00444 00452 00459 01199* 01484 02158 02160
02162 02176 02957* 02965 02976 03885 03908 04679
04694 05626 05652 05655 06958 06964 06976 06983
06986
BENIGN STOMACH NEOPLASMS
00303 00355* 00372 00376 00380 00403 01346 02110
02128 02129 02132 02135 02930 03018 03641 03661
03681 03811 03833 03838 03846 03848 03853 05401*
05527 05531 05538 05541 05551 05553 05559 06861*
06862* 06871 06901 07020 08159 08168 08176 08183
08186 08207 08215
BEZOARS
00390 00420 02145* 02615 03887 04234 04692 05644
07036
BICARBONATE
00119*
BICARBONATE ABSORPTION
00030* 02640*
BICARBONATE SECRETION,PANCREAS
00096* 00099* 00101* 00104* 00106 01087* 01109* 01411
01908* 01912* 01913* 01918 02310 02472* 03131* 04150*
04387* 05272 05519* 06530* 06550* 06551* 07195* 07829*

BILE
00084* 00088 00661* 02319* 02716 03815 04180 04333
04463 04892 05297* 05335 05883* 05967 05978 06128*
06327 06573* 07015* 07213* 07216 07525* 07679 08690
08832*
BILE ACID ABSORPTION
01055
BILE ACID METABOLISM
01439
BILE ACIDS
06396*
BILE ACIDS AND SALTS
SEE ALSO ABSORPTION
00028* 00119* 00133* 00171 00434* 00529* 00772* 00850*
01042* 01055 01059 01125* 01129* 01143* 01392* 01439
01700 01711 01712 01737 01916 01983 01994 02420*
02728 02736* 02748 03039* 03224 03245 03255 03312
03691 03692 04406* 04459 04461 04472 04751* 04874*
05286* 05292* 05293* 05334 05341 05368* 05634 05912*
05967 05988 06010 06011 06012 06090 06116 06161
06178 06202 06238* 06478* 06572* 06573* 06585* 06654
06655 06656 07015* 07056* 07226* 07273 07466* 07884*
07902* 07907 07914 07944 07956 07980 08929
BILE ANALYSIS
00119* 00135* 00148 01059 01129* 01922* 02716 03245
05421 07485
BILE COMPOSITION
00119* 00123* 00133* 00135* 00698* 01042* 01065 01117*
01126* 01129* 01714 01719 01922* 01976 01984 02502*
02716 03483* 03691 04415* 04440 04463 05264 05292*
05341 06222 06238* 06473* 06571* 06654 06655 06656
07884* 07901* 07938 07956
BILE DUCT
SEE ALSO BILIARY TRACT
05124 06506* 07989* 05456
BILE DUCT PROSTHESIS,COMMON
00845*
BILE DUCT,COMMON
SEE ALSO BILIARY TRACT
00210* 00444 00660 00750 00753 00756 00787 00844*
00848* 00849* 00852 00861 00864 00865 00867 00869
00870 00871 00881 01025* 01110* 01223 01232 01533*
01570 01585 01596 01676* 01679* 01685 01687 01688
01689 01690 01691 01692 01693 01694 01695 01698
01699 01702 01712 01717 01862* 01914 01938 02314
02497* 02498* 02499* 02503* 02504* 02505* 02507 02509
02510 02511 02512 02517 02521 02524 02526 02531
02532 02533 02534 02535 02536 02537 02538 02652*
02728 02784 02860 03028 03177 03215 03282* 03291
03292 03296 03297 03300 03302 03303 03304 03305
03307 03310 03665 03712 03713 03828 04058 04167*
04178 04179 04182 04185 04508* 04573 04688 04837
04888 04931 04991 04996 04997 05002 05005 05012
05013 05444 06128* 06133* 06135* 06142 06146 06148
06156 06158 06174 06181 06185 06186 06187 06188
06189 06192 06195 06197 06198 06211 06213 06215
06505* 06519 06749 06788 06981 07218 07230* 07471*
07483 07489 07491 07495 07502 07504 07507 07511
07512 07513 07904 08563* 08825* 08826* 08831* 08842
08845 08850 08853 08855 08857 08858 08864 08869

BILE EXCRETION
00051* 00148 00434* 00680* 01126* 01146* 02728 02793
03557 04310* 04333 04425* 04426* 04432* 04447 05113*
05293* 05295* 05345 06228* 06486 06591* 07273 07775*
07784* 07804 07902* 07913 06048
BILE METABOLISM
01065 01922* 03532* 04459 04461 04472 05014 05286*
05334 06178 06581* 06582* 07525* 07914
BILE METABOLITES,URINARY
00694* 01711 08769
BILE MICROORGANISMS
00896* 01620 02501* 02505* 06182 06238*
BILE PERITONITIS
00896* 03293 04196* 04240 07480 07521* 08841

BILE PIGMENTS
SEE ALSO BILIRUBIN
SEE ALSO CHOLESTASIS
00163 00698* 00709* 01113* 01572 01700 01940 01941
03706 04074 04842 05213 05214 05215 05877 05878
05879 05880 06202 06228* 06581* 06582* 07748 07775*
BILE PIGMENTS IN JAUNDICE,SERUM 05295* 05123
00163 00680* 00762 00787 01168 01203* 02361 03177
03184 04425* 05913* 05974 06589* 07333
BILE PIGMENTS,SERUM
01558
BILE SALT ABSORPTION
00028* 00529* 02748
BILE SALTS
SEE ALSO BILE ACIDS AND SALTS
04415* 06494 07791 07807 07902* 08600* 08706
BILE SECRETION
00115* 00119* 00133* 00687* 00762 00770* 01006* 01014*
01113* 01117* 01126* 01129* 01143* 01147* 01266 01575
01577 01938 01984 02251 02348* 02413 02420* 02506*
02522 02665 02703* 03001* 03245 03557 03671 03993
04114 04459 04464 04479 04498* 04997 06006 06228*
06473* 06571* 06663 07450 07784* 07884* 07894* 07902*
BILE SECRETION STUDY TECHNIQUES
04310*
BILE SECRETION,DRUG EFFECTS ON
01129*
BILE,DIGESTIVE ACTION OF
01055 01059
BILIARY CIRRHOSIS
00173 00817* 00841 01553* 01561 01562 01645 01657
01672 02019* 02387 02426 02486 04319* 05324 06213
07287 07432 07450 08065*
BILIARY DISEASE DIAGNOSIS
00210* 00212* 00218* 00234* 00239* 00248 00257 00270
00279 00282 00283 00300 00301 00306 00307 00678*
00679* 00682* 00865 00871 00872 00874 00876 00879
00881 01207* 01208* 01209* 01213* 01223 01227 01232
01237 01239 01243 01247 01253 01266 01550* 01560
01567 01570 01657 01691 01692 01702 01715 01717
02000* 02008* 02011* 02023* 02028* 02040 02047 02060
02359 02397 02497* 02500* 02520 02531 02532 02756*
02757* 02783 02784 02800 02808 02813 02819 02832
02836 02856 02860 03028 03118* 03131* 03188 03285*
03290* 03294 03295 03297 03299 03304 03305 03306
03307 03497* 03609* 03631 03665 03671 03675 03687
03704 03712 03713 04117 04175* 04176* 04179 04185
04187 04569 04570 04573 04698 04888 04984* 04985*
05008 05048 05415 05433 05968 05988 06013 06019
06030 06142 06154 06175 06208 06209 06218 06219
06732 06749 06781 06788 07197* 07287 07288 07432
07478 07490 07491 07498 07505 07507 07613 07901*
08001* 08035 08042 08045 08057 08058 08671 08673
08686 08701 08790 08851 08855 08858 08862 08865
08866 08879 05441 06773 07512
BILIARY DISEASE EPIDEMIOLOGY
01683
BILIARY DISEASE ETIOLOGY
00779* 01604 01675* 01708 01709 02345* 02504* 02508
02514 07287 07489 07494
BILIARY DISEASE IN CHILDREN
07475 08839 02500* 08843
BILIARY DISEASE TREATMENT
00678* 00760 00874 01232 01560 01657 01672 01681*
02205 02397 02501* 02502* 02506* 02531 02532 02984
03363 03851 04088* 04892 04931 04999 06013 06071
06158 06197 06215 06218 07230* 07287 07475 07488
07494 08626* 08692 08839 08845 07522*
BILIARY DISEASES
01232 01515 01560 01569 01600 01683 01684 01698
01703 02302* 02397 02413 02529 02530 02533 02535
02536 02537 02538 02716 02858 02861 03152 03188
03189 03190 03245 03260* 03296 03300 03301 03308
03310 03343 03623 03907 04422* 04874* 04916 05000
05001 05013 05137 05898 06010 06132* 06152 06161
06173 06181 06207 06213 06214 06217 06218 06376
07313 07352 07487 07495 07508 07517 07518 07519
07522* 07663 08617 08620* 08662 08690 08877 08880

BILIARY ILEUS
01710 02516 06139* 06946*
BILIARY NEOPLASMS,BENIGN
06195
BILIARY NEOPLASMS,MALIGNANT
02498*
BILIARY PANCREATITIS
05897
BILIARY PERFORATION
07480
BILIARY PERITONITIS
06376
BILIARY SURGERY
05885
BILIARY TRACT
SEE ALSO CHOLECYSTITIS
SEE ALSO CHOLELITHIASIS
SEE ALSO GALLBLADDER
00849* 01025* 02832 02856 03172* 04931 06160 06505*
06506* 07255*
BILIARY TRACT ABSORPTION
01842*
BILIARY TRACT ANGIOGRAPHY
01560 03285* 04176* 04177* 04985* 06418 07479
BILIARY TRACT ANOMALIES
00301 00849* 00876 00882 01544* 01545* 01553* 02043
02050 02359 02367 02500* 02511 02517 02521 03168*
03288* 04836 04837 04991 05005 05013 06009 06146
06153 06156 06157 06417 07469* 07502 07989* 08684
08851 08869 06570*

BILIARY TRACT ATRESIA
03288* 08828*
BILIARY TRACT BIOCHEMISTRY
05286* 05320 06581* 06582* 07485 08832*
BILIARY TRACT BIOPSY
08057
BILIARY TRACT CANCER
00219* 00867 00874 00969 01569 01699 02498* 03189
03197 03290* 03291 03303 03310 03596* 03637 04177*
04185 04283 04990 04996 05008 05137 06175 06183
06193 06220 06570* 07516
BILIARY TRACT CIRCULATION
08822
BILIARY TRACT CIRRHOSIS
03265* 03270 04281* 04562 06067 08692
BILIARY TRACT CYSTS
04179 07477
BILIARY TRACT DEVELOPMENT
03168* 03470
BILIARY TRACT DIAGNOSIS
05909* 06025 06188 06193 06206 06474* 06591* 06768
07393* 07479 08013 08630*

BILIARY TRACT DISEASE ETIOLOGY
08630*
BILIARY TRACT DISEASES
00292 00410 00425 00865 00981 02357 05909* 06188
07451 08886 06238* 06570*
BILIARY TRACT ENDOSCOPY
01223 04122 05441
BILIARY TRACT ENZYMES
08623*
BILIARY TRACT EXCRETION
07794
BILIARY TRACT FISTULAS
00682* 00717 00719 00969 01478 01696 01708 01710
01711 02509 02511 02514 02516 03028 04175* 05002
05006 05020 05334 05415 06176 06187 06218 07907
07911 08851
BILIARY TRACT HISTOLOGY
00826* 03168* 04270* 06142 06406* 07393*
BILIARY TRACT IMMUNOLOGY
01657 07432 07518
BILIARY TRACT IN CHILDREN
00849* 00876 00879 01544* 01545* 02043 03288* 04167*
04181 04322* 04463 04989 04999 05000 05005 06071
06140 06146 06215 07493 07989*
BILIARY TRACT INJURIES
08717 08857 08864
BILIARY TRACT METABOLISM
03532* 03631 06005 06593* 07907 07911
BILIARY TRACT MICROORGANISMS
00703* 01556 02550* 06127* 06151 07518
BILIARY TRACT MORPHOLOGY
00826* 01025* 01717 02359 02497* 02521 02832 03288*
03470 03828 05122 05137 05967 06138* 06156 06175
06200 06206 06417 06693 06721 06722 07475 07499

BILIARY TRACT MORPHOLOGY
CONTINUED
07508 07756
BILIARY TRACT MOTILITY
01071* 01239 01577 01862* 02513 02514 02652* 02816
03284* 03292 03704 05200 05883* 06626 07911
BILIARY TRACT MUCOSA
07393* 08842

BILIARY TRACT NEOPLASMS
01232 01560 01697 01934 02524 02904* 06009 06142
06161 06186 06193 06210 08845 06129* 07288
BILIARY TRACT NEOPLASMS,BENIGN
00857 03310 06168 06184 07504 08889
BILIARY TRACT NEOPLASMS,MALIGNANT
00213* 01678* 01699 02365 03291 03303 03310 04185
05003 05004 05010 06126* 06131* 06175 08576
BILIARY TRACT OBSTRUCTION
00656 00664* 00703* 00756 00817* 00849* 00852 00854
00864 00870 01205* 01208* 01209* 01213* 01227 01232
01243 01533* 01536* 01539* 01560 01570 01585 01595
01596 01599 01706 01713 01718 01938 02008* 02335
02359 02500* 02504* 02509 02532 02535 02536 02537
02538 02783 03144* 03189 03285* 03289* 03300 03449*
03534* 03596* 03706 03910 04107 04130 04167* 04182
04186 04422* 04425* 04545* 04569 04698 04878* 04892
04931 04981* 04992 04997 05008 05016 05316 05974
06012 06137* 06146 06174 06185 06196 06211 06222
06474* 07218 07432 07444 07449 07467* 07471* 07479
07502 07904 07944 07945 08563* 08635* 08657 08671
08706 08825* 08863 08878 08879 06201 07507

BILIARY TRACT PATHOLOGY
00698* 01533* 01560 01640 01710 02302* 02315 02359
02716 03188 03190 03284* 03295 03299 03604* 03671
03828 04276* 04569 04931 05000 05008 05014 05418
06071 06193 06212 06217 06218 06626 07306 07393*
08854
BILIARY TRACT PERFORATION
01706
BILIARY TRACT PERITONITIS
03293
BILIARY TRACT RADIOGRAPHY
07479
BILIARY TRACT RADIOLOGY
SEE ALSO BILIARY DISEASE DIAGNOSIS
00212* 00218* 00248 00270 00282 00283 00300 00307
00682* 00872 00881 01207* 01212* 01213* 01227 01237
01239 01243 01247 01253 01266 01560 01676* 01677*
01685 01687 01689 01692 02028* 02040 02302* 02497*
02520 02522 02756* 02784 02785 02800 02819 02832
02856 02860 03028 03281* 03284* 03290* 03299 03302
03363 03609* 03631 03665 03687 03693 03704 03712
03713 03865* 04175* 04176* 04177* 04181 04185 04187
04569 04570 04573 04589 04698 05012 05015 05415
05433 05444 05456 05464 06019 06136* 06154 06216
06238* 06693 06721 06722 06768 06773 06788 07467*
07468* 07478 07490 07505 07512 08001* 08058 08880
BILIARY TRACT STRICTURE
01392* 01675* 01702 02367 02520 02532 03285* 03287*
03828 05002 06133* 06187 06198 07467* 07486 02509

BILIARY TRACT SURGERY
00283 00306 00639* 00667* 00673 00678* 00679* 00703*
00783 00817* 00845* 00848* 00849* 00852 00853 00854
00857 00861 00862 00864 00869 00870 00871 00876
00879 00881 00969 01205* 01239 01521 01532 01533*
01544* 01545* 01553* 01560 01561 01675* 01676* 01677*
01678* 01679* 01681* 01687 01688 01689 01690 01691
01692 01693 01696 01697 01698 01699 01702 01703
01706 01707 01709 01712 01716 01718 02303* 02312
02315 02335 02365 02367 02497* 02498* 02499* 02503*
02504* 02505* 02507 02509 02510 02511 02512 02517
02522 02524 02526 02529 02530 02531 02532 02535
02536 02537 02538 02783 02784 03152 03188 03190
03281* 03282* 03287* 03288* 03289* 03291 03295 03296
03297 03299 03300 03302 03304 03306 03307 03308
03665 03704 03828 03910 04053* 04069* 04088* 04166*
04168* 04176* 04178 04179 04182 04203 04508* 04573
04688 04833 04852* 04853* 04888 04899 04931 04983*
04984* 04986* 04992 04996 05001 05002 05006 05012
05013 05015 05016 05086 05137 05433 05444 05464
05668* 05890 05898 05935 05946 06001 06002 06019
06126* 06128* 06133* 06135* 06136* 06140 06146 06151
06152 06156 06158 06162 06168 06175 06176 06188
06189 06206 06207 06208 06209 06213 06217 06218
06219 06220 06222 06308 06417 06519 06768 06773
06924 07230* 07288 07301 07306 07343 07469* 07477
07478 07483 07486 07487 07491 07495 07499 07503
07504 07508 07513 07517 07519 07536* 08136* 08299
08563* 08569 08617 08705 08831* 08835* 08842 08845
06198

BILIARY TRACT SURGERY
CONTINUED
08848 08853 08856 08857 08858 08863 08864 08868
08870 08873 08881 08887
BILIARY TRACT TRAUMA
00363* 00870 01025* 02503* 02512 05018 06025 06693
07301 07467* 08136*
BILIARY TRACT,AGE EFFECTS ON
02302*
BILIARY TRACT,DISEASES ASSOCIATED WITH
02530 03304 03343 04319* 04984* 06154 07352 07487
BILIARY TRACT,DRUG EFFECTS ON
00024* 01113* 01239 01862* 02506* 02536 04276* 04432*
04589 05297* 06626 07615 07945 08682
BILIARY TRACT,DRUG TREATMENT OF
02501* 02526 02536 02652* 03363 07488 07518 07522*
08626*
BILIARY TRACT,FOREIGN BODIES IN
07511
BILIARY TRACT,NERVOUS CONTROL OF
00844* 01126* 01862* 02197* 06626
BILIARY TRACT,TOXIC EFFECTS ON
01984 04432* 06147
BILIRUBIN
00116* 00128* 00163 00178* 00190 00200* 00270 00689*
00694* 00697* 00705* 00726 00748 00758 00829* 01006*
01113* 01143* 01148* 01168 01203* 01558 01572 01585
01700 01940 01941 02023* 02345* 02347* 02361 02388
02421* 02452* 02453* 02454* 02469 02728 02751 02752
03182 03184 03194 03207 03212 03215 03222 03237*
03255 03300 03478* 03620 03666 03682 03706 04127
04140 04432* 04537 04545* 04861* 04887 05014 05110*
05117* 05131 05172 05212 05214 05215 05217 05218
05219 05295* 05304 05313 05316 05320 05322 05390
05396* 05421 05426 05442 05443 05904* 05912* 05913*
05933 05934 05936 05941 05942 05945 05946 05948
05949 05959 05974 05979 05983 05984 05986 05989
05990 06005 06048 06050* 06067 06075* 06076* 06079*
06202 06203 06473* 06581* 06582* 06589* 06591* 06645
06662 06663 06909 07270 07331 07334 07370* 07376
07380 07383 07480 07748 07775* 07778* 07784* 07804
07941 08619* 08620* 08622* 08630* 08668 08672 08679
08718 08720 08753* 08770 08825* 08832*
BILIRUBIN METABOLISM
06593* 08719

BIOCHEMICAL DIAGNOSIS IN LIVER DISEASES
07317
BIOCHEMICAL DIAGNOSIS OF CANCER
00215* 05275* 06378 06621 07238* 07523*
BIOCHEMICAL DIAGNOSIS OF CIRRHOSIS
01206* 03714 04135* 07429* 07448

BIOCHEMICAL DIAGNOSIS OF GASTROINTESTINAL DISEASES
00197* 07527* 06759
BIOCHEMICAL DIAGNOSIS OF HEPATITIS
01206* 02438 03633 04135* 04145 04944* 07289 08770
BIOCHEMICAL DIAGNOSIS OF JAUNDICE
00201* 00213* 03667 05173 05298* 06159 07236* 07992*

BIOCHEMICAL DIAGNOSIS OF LIVER DISEASES
00707* 01128* 01205* 01616 02001* 02012* 02038 02393
03690 04098 04572 05133 05919* 05983 06107 06707*
07238* 07256* 07448 07992*
BIOCHEMICAL DIAGNOSIS OF MALARSORPTION
00529* 05726 07527*
BIOCHEMICAL DIAGNOSIS OF PANCREAS DISEASES
01229 01241 02057 02058 02059 02060 05273 05873
07991* 08590
BIOCHEMICAL DIAGNOSIS OF SALMONELLOSIS
00889*
BIOCHEMICAL DIAGNOSIS OF SCHISTOSOMIASIS
04089*
BIOCHEMICAL DIAGNOSIS OF STOMACH DISEASES
00364*
BIOCHEMICAL DIAGNOSIS OF ULCERATIVE COLITIS
00562* 01494*
BIOCHEMICAL DIAGNOSIS PF PANCREAS DISEASES
05272
BIOCHEMISRTY,LIVER
03471
BIOCHEMISTRY SMALL INTESTINE
03595*
BIOCHEMISTRY,BILIARY TRACT
05286* 05320 06581* 06582* 07485 08832*
BIOCHEMISTRY,CELL
01828
BIOCHEMISTRY,DUODENUM
06778
BIOCHEMISTRY,GALLBLADDER
00024* 02526 03631 05292* 08878
BIOCHEMISTRY,GASTROINTESTINAL
00063* 00157 00183* 00187 00191 00954 01027 01079
01184 01745 01815* 02632 04287 04316* 05097* 06527
08918 05903*

BIOCHEMISTRY,LARGE INTESTINE
00564* 01017* 01181* 02657 03102 04249 04527 05097*
05366* 05374 05384 05830 06675 06676 06678 06778
07115 07738 07760 07772 07970
BIOCHEMISTRY,LIVER
00012* 00021 00064* 00108* 00111* 00112* 00113* 00114*
00116* 00117* 00118* 00120* 00121* 00122* 00124* 00125*
00127* 00128* 00131* 00132* 00134* 00136* 00137* 00138*
00139* 00140* 00141* 00143 00147 00148 00149 00150
00152 00154 00155 00156 00157 00158 00160 00161
00162 00166 00167 00168 00170 00171 00174 00175
00176 00201* 00202* 00226* 00693* 00722 00726 00745
00749 00759 00764 00767* 00768* 00769* 00780 00788
00791 01014* 01017* 01019* 01026* 01030 01119* 01120*
01121* 01123* 01124* 01125* 01127* 01128* 01130* 01131*
01132* 01134* 01136* 01137* 01138* 01139* 01140* 01141*
01145* 01146* 01148* 01149* 01150* 01151 01152 01153
01154 01156 01157 01159 01160 01161 01163 01164
01165 01170 01173 01175 01205* 01541* 01555 01625*
01635 01639 01655* 01823 01826 01836 01922* 01923*
01924* 01925* 01926* 01927* 01928* 01929* 01930* 01932
01933 01935 01937 01944 01945 01946 01947 01948
01949 01950 01951 01952 01953 01954 01955 01956
01957 01958 01959 01960 01962 01964 01965 01966
01967 01968 01969 01970 01973 01974 01975 01977
01978 01979 01980 01981 01982 02037 02042 02376
02381 02406 02418* 02419* 02424 02427 02443 02449
02460* 02492 02618* 02624* 02635 02639 02694* 02695*
02696* 02697* 02698* 02700* 02701* 02702* 02704* 02705*
02706* 02709* 02710* 02711 02712 02713 02714 02715
02718 02719 02720 02721 02722 02726 02727 02728
02732 02738* 02765* 02771 02827 02830 02838 03154*
03169* 03170* 03186 03187 03191 03194 03209 03210
03213 03222 03223 03224 03227 03273 03446* 03447*
03469* 03473 03475 03484* 03533* 03534* 03535* 03538*
03539* 03541* 03542* 03543* 03544* 03545* 03546* 03547*
03548* 03549* 03551* 03557 03563 03564 03565 03566
03567 03571 03575 03575 03576 03577 03578 03581
03582 03583 03584 03586 03587 03588 03589 03590
03592 03622 03635 03649 03650 03714 03868* 04087*
04098 04112 04148 04151* 04159 04248 04265* 04271*
04291 04299 04308 04404* 04405* 04418* 04435 04436
04437 04440 04444 04445 04446 04447 04448 04449
04450 04451 04452 04453 04454 04455 04457 04458
04462 04465 04466 04467 04468 04469 04471 04472
04473 04474 04475 04477 04502* 04821 04879* 04893
05099* 05106* 05107* 05118 05123 05176 05210 05220
05275* 05284* 05285* 05287* 05288* 05289* 05290* 05295*
05298* 05299* 05302 05305 05306 05307 05309 05310
05311 05313 05314 05317 05324 05326 05328 05332
05333 05334 05336 05337 05340 05342 05351 05379*
05414 06004 06006 06024 06055* 06079* 06400* 06410*
06411* 06424 06426 06428 06432 06457 06565* 06567*
06569* 06579* 06587* 06596* 06597* 06598* 06600* 06610
06613 06616 06619 06620 06621 06622 06623 06624
06625 06627 06630 06634 06637 06638 06639 06641
06649 06650 06653 06658 06659 06660 06664 07256*
07271 07382 07431* 07464 07718* 07732* 07734* 07741
07754 07755 07762 07768 07775* 07877* 07879* 07881*
07882* 07886* 07887* 07888* 07889* 07890* 07892* 07895*
07897* 07898* 07899* 07903* 07906 07909 07916 07920
07926 07928 07929 07934 07936 07947 07948 07949
07950 07951 07952 07953 07954 07956 07957 07958*
08028 08620* 08621* 08627* 08630* 08633* 08640* 08696
08728* 08740 08777 08779 08814 08824
BIOCHEMISTRY,PANCREAS
00009* 00094* 00098* 00100* 00102* 00103* 00292 01111*
01112* 01115 01116 01188 01229 01526 01581 01816*
01907* 01909* 01910* 01914 01916 01917 01919 01991
01992 01996 01998 02338 02776 02837 03130* 03134*
03137 03138 03236* 03531 03599* 03674 04074 04386*
04395 04397 04398 04399 04831* 04842 04944* 05000
05210 05259* 05266 05267 05271 05413 05864 05877
05878 05879 05880 05884* 05896 06561 06563 07866*
07867* 07868* 07876 08031 08583 08594* 08598*
BIOCHEMISTRY,RECTUM
01452*
BIOCHEMISTRY,SALIVARY GLAND
01824 01874 01999 02745 04075 06463 06526
BIOCHEMISTRY,SMALL INTESTINE
00002* 00004* 00012* 00023* 00026* 00036 00064* 00065*
00194 00234* 00286 00447 00528* 01005* 01008* 01016*
01020* 01023* 01040* 01043* 01044* 01050* 01056 01062
01176* 01179* 01180* 01182* 01183* 01442 01711 01712
01814* 01822* 01830 01831 01845* 01846* 01850* 01987*
01989* 02147* 02623* 02642* 02657 02662* 02737* 03053
03236* 03482* 03485* 03488* 03492 03598 03672 03705
04249 04328 04485* 04493 04689 05097* 05170 05210
05360* 05365* 05366* 05367* 05384 05722* 05848* 05857
06427 06472* 06477* 06669* 06675 06676 06678 06778

BIOCHEMISTRY,SMALL INTESTINE
CONTINUED
06978 07068* 07076 07738 07753 07760 07772 07958*
07961* 07963* 07968 07969 07970
BIOCHEMISTRY,STOMACH
00007* 00008* 00022 00068* 00069* 00070* 00075* 00076*
00087 00088 00089 00092 00364* 00366* 00374 00424
01046* 01089* 01105 01819* 01891* 01893* 01900 02214
02637 02689 03501* 03507* 03514* 03515* 03516* 03521
03524 03803 04294 04326 04370 04644 05097* 05136
05228* 05253 05366* 05384 06441 06535* 06540 06541
06547 07825 07848* 07851* 07855* 07856* 07858 07859
07966* 08155
BIOPOTENTIALS,GASTROINTESTINAL
02620* 02737*

BIOPSY IN CANCER DIAGNOSIS
01285 01490 02249 02891 02910* 03325* 03705 03718
05423 05789 05793
BIOPSY IN MALABSORPTION DIAGNOSIS
00555 03058 03966 05446 05721*
BIOPSY,ABDOMEN
02791
BIOPSY,ANUS
02280 03990 04003
BIOPSY,BILIARY TRACT
08057
BIOPSY,DUODENUM
03046 05138
BIOPSY,ESOPHAGUS
00296 01285 02632 02804 02869* 02891 03728 03745
04046 05434 08005* 08132
BIOPSY,GASTROINTESTINAL
00278 00297 00557 01222 01770 02861 04287 04314*
06737 07579
BIOPSY,LARGE INTESTINE
00624 00824* 01265 01758 02254* 03645 03705 04033
08415 08530
BIOPSY,LIVER
00021 00173 00215* 00216* 00222* 00246 00306 00698*
00701* 00733 00734 00759 00774* 00824* 00879 00903*
01195* 01196* 01206* 01208* 01230 01242 01384 01534*
01536* 01551* 01556 01574 01606* 01674 01781 01826
02009* 02360 02366 02380 02405 02466 02494 02712
02765* 02769* 02771 02799 02806 02807 02852 03156*
03177 03182 03183 03186 03204 03208 03217* 03220*
03230 03251 03273 03275 03281* 03654 03682 03706
03907 04086* 04106 04109 04110 04130 04140 04141
04145 04160 04210 04280* 04285 04562 04572 04579
04594 04623* 04881 04887 04908 04913 04934 05048
05099* 05107* 05121 05123 05124 05669* 05908* 05939
06013 06048 06061 06107 06132* 06159 06172 06206
06436 06451 06597* 06728 06729 06730 06755 07074
07246* 07300 07316 07329 07393* 07425* 07427* 07431*
07446 07487 08044 08648 08667 08672 08696 08727
08738 08762 08785* 08801 08828* 08652
BIOPSY,PANCREAS
00654 02839 04236 04553*
BIOPSY,RECTUM
00297 00609 00624 00626 02053 02254* 02259 02272
02595 03699 04008 04008 04012 04014 05417 05767
05780 07187 08034 08484
BIOPSY,SALIVARY GLAND
00921 03414
BIOPSY,SMALL INTESTINE
00278 00284 00438* 00441* 00448 00458 00527* 00528*
00551 00555 00558 00560 01183* 01197* 01442 01758
01762 01841* 02144* 02148* 02151* 02166 02240* 02249
02627* 02961* 02985 02994 03053 03054 03058 03200
03425 03453* 03627 03705 03719 03814 04307 04314*
04591 04754 05420 05446 05600* 05602* 05633 05731
06077* 06326 06672 06716* 07061* 07066* 07069 07087
07096 08415 08421 08425 08752*
BIOPSY,STOMACH
00196* 00236* 00305 00371* 00414 00421 01007* 02097*
02599 02670* 02898* 02910* 02931 02951 02952 02953
03009* 03013* 03018 03626 03812 04585 05411 05440
05560 05561 06013 06076* 06709* 06723 08056 08173
BLEEDING
SEE ALSO ESOPHAGUS VARICES
00456 00467 00752 00983 01234 01293 02106* 02127
02128 02156 02177 02222 02225 02257 02331 02586
02743* 02779 02802 02848 02855 02967 02969 02976
02992 03097 03108 03161* 03191 03295 03328* 03339
03351 03358 03391 03419 03433 03564 03605 03637
03702 03758 03778 03794* 03872 03877 03929 04003
04019 04577 04687 04717 05036 05423 05700 05715
05813 05819 05875 05888 05952 06185 06279 06294
06362 06568* 06908 06922 07039 07103* 07561 07637
07988 08224
BLEEDING DIAGNOSIS
00230* 00235* 00251 00312* 00346 00488 00733 00831
00933 01199* 01216* 01288 01385 01485 01723* 01782
01813 02003* 02026* 02032* 02584 02777 02778 02798
03295 03328* 03642 03768 04022 04023 04203* 04577
BLEEDING DIAGNOSIS
CONTINUED
04730 04734 04994 05025* 05071 05448 05576 05607
05792 05810 05960 06235* 06353 06765 06791* 06826
06839 06964 07533* 07993* 08019 08195 08279 08493
08892* 08999
BLEEDING DIAGNOSIS,ENDOSCOPY IN
00347 01260 01782 02002* 03328* 03652 03717 03721
04230 05025*
BLEEDING DIAGNOSIS,RADIOLOGY IN
00250 00347 01260 01369 01782 02002* 02048 02215
03328* 03642 03651 03652 03653 03717 03833 05025*
06341 06950 07993*
BLEEDING ETIOLOGY
00083* 00250 00251 00344 00346 00347 00366* 00380
00430* 00459 00461 00488 00491 00502 00515 00552
00624 00646 00675 00711 00725 00738 00756 00763
00765* 00880 00884* 00918 00933 00955 00968 00980
01199* 01256 01260 01280* 01288 01306* 01307* 01332
01348 01350* 01369 01385 01407 01413 01485 01487
01488 01505* 01548* 01557 01723* 01730* 01733* 01740
01741 01762 01763 01781 01782 01786 01804 01810
01813 02048 02114 02115 02188* 02215 02223 02225
02262 02265 02266 02283 02491 02584 02585 02609
02798 02957* 02981 03101 03116* 03144* 03193 03206
03328* 03348 03351 03651 03652 03653 03743 03767
03768 03833 03845 03874 03888 04022 04023 04192*
04353* 04504* 04600* 04625* 04679 04680 04681 04688
04725 04726 04782 04925 04993 04994 05025* 05045
05048 05071 05135 05487 05566 05647 05655 05668*
05723 05757 05960 06235* 06274 06318 06469* 06828
06841 06897 06980 07045 07439 07583 07587 07708
07716 07993* 08229 08317 08810 08813 08892* 08999
BLEEDING IN CHILDREN
00708* 00918 01811 01813 02609 02798 04093* 04192*
04925 05448 05496 05688 05924*

BLEEDING PEPTIC ULCERS
00235* 00472* 00488 00491 00502 00505 00515 00933
01297 01407 01413 01627* 01730* 01782 02098* 02115
02199* 02203 02209 02214 02215 02584 02585 03011*
03012* 03351 03919* 03926* 03937 04203* 04714* 04725
04726 05029* 05033* 05668* 05684 06765 07026 08380
08389 08392 08865 08897* 08900 07004* 07005* 07010*
BLEEDING TREATMENT
00235* 00312* 00344 00347 00409 00488 00515 00755
00765* 00820* 00822* 00918 00933 00986 01289 01291
01307* 01485 01488 01673 01733* 01782 01813 02115
02118 02215 02477* 02584 02592 02609 03328* 03358
03381 03416 03735* 03767 03794* 03937 04000 04607
04625* 04696 04967 05033* 05071 05479 05499 05679
05924* 06096* 06106 06235* 06341 06353 06791* 06821
06839 06865* 06997* 07046 07328 07530* 07533* 07655
07716 07993* 08065* 08069* 08195 08904 08970
BLEEDING,COOLING TREATMENT OF
00409 01319* 02098* 04713* 05543 05757 08897* 08900
BLEEDING,GASTROINTESTINAL
03328* 04734 05050 05475 05569 05607 05614 05616
05618 05679 05899 06141 06274 06311 06892 06930
07141 07218 07327 07328 07447 07453 07716 08186
08195 08262 08271 08279 08283 08297 08342 08392
08522 08542 08810 08904 08999 09017
BLEEDING,SURGICAL TREATMENT OF
00347 00459 00502 00677* 00755 00822* 01291 01369
01385 01396* 01421 01733* 02066* 02077 02115 02199*
02209 02215 02222 02339 02350* 02373 02445 02471*
02478 02530 02584 02885 02981 02986 03082* 03142
03226 03417 03836 03919* 04203* 04607 04672 04680
04681 04688 04714* 04722 04965* 04967 05029* 05578
05831 05924* 06124 06235* 06369 06844 06997* 07031
07103* 07481 07993* 08221 08279 08311 08392 08504
08747 09017
BLIND LOOP SYNDROME
03059
BLIND LOOP-INDUCED MALABSORPTION
03047
BLIND LOOP-INDUCED SECONDARY MALABSORPTION
00995 01037* 01439 02179 02242 03043* 04751* 05695
06478* 07083

BLOOD CHOLESTEROL
06228*
BLOOD COAGULATION
00168 00549 00681* 00684* 00689* 00809 01242 01413
01546* 01577 01586 01621 01740 02188* 02283 02322*
02353* 03358 03416 03551* 03852 03926* 04237 04353*
05036 05757 05940 06054* 06062 06112 06289
BLOOD COAGULATION IN CIRRHOSIS
01289 01649* 02487 02491 03608* 04157 04971
BLOOD COAGULATION IN LIVER DISEASES
00178* 00754 00763 01549* 02378 04094* 04157 04444
06279 07417 08808

BLOOD COAGULATION IN PANCREATIC DISEASES
05851
BLOOD GROUP GENETIC RELATIONSHIPS
00751 01304* 02100* 02196* 03045* 04362* 04719 05226*
05564 06906*
BLOOD GROUP SECRETOR STATUS
01304* 01882* 01993 03045* 04348* 04362* 04719 07040
BLOOD GROUPS
01410 01882* 01993 04905 06131* 06153
BONE DISEASES
01500 01574 01602 01684 01803 03403 04319* 07786*
BONE DISEASES,GASTRECTOMY-INDUCED
01313* 03959*
BONE DISEASES,MALABSORPTION-INDUCED
00547

BORBORYGMUS
00622 06345 06322
BRADYKININ
00622 00666* 01860* 02583 02657 02908* 04498* 04737
06315 07968
BUDD-CHIARI SYNDROME
00713 01291 02854 03637 04252 04533 04915 05906*
05970 07235* 07303 07341 07447
BYLERS DISEASE
00705*

CAFFEINE
01839* 04556* 05513*
CALCIFICATION
01668
CALCIUM
00042 00043 00629* 00788 00863 00878 00903* 01090*
01096* 01517* 01931 02247 02310 03505* 03860 04199*
04312* 04398 05558 06328 06413* 06609 06978 07855*
07856* 07944 08609 08690
CALCIUM ABSORPTION
00040 00465 00542 00547 00549 01313* 01840* 01876*
03040* 03493 03598 03959* 03965 04117 04218 04312*
04319* 04330 04384 05185 05369 05372 06259 06466*
06475* 06476* 06480* 06492 06500 06699 07779* 07780*
07786* 07793 08055
CALCIUM METABOLISM
02327 03801* 05372
CALCIUM SECRETION,PANCREAS
04835
CALCULI,GASTROINTESTINAL
01769
CALCULI,LIVER
01561
CALCULI,PANCREAS
03152 03306 04835 05899 08564* 08585
CANCER
03095 04189* 05010
CANCER CHEMOTHERAPY
00426 00462 00605 00609 00921 00945 01302 01330
01332 01454* 01490 01566 01609 01807 01933 02086
02268 02379 02933 02938 02944 02993 03371 03802*
03822 04051* 04116 04215 04225 04239 04277* 04537
04627* 04869* 05078 05098* 05914* 06856 06881 07726*
07918 07919 08072* 08170 08191
CANCER DIAGNOSIS
00205* 00213* 00215* 00222* 00227* 00230* 00238* 00241
00246 00253 00271 00288 00290 00291 00293 00294
00304 00305 00338 00353* 00370* 00388 00419 00426
00450 00624 00644* 00660 00756 00874 01096* 01194*
01196* 01198* 01216* 01224 01228 01229 01257 01311*
01364 01503* 01509 01735* 01736* 02005* 02009* 02010*
02013* 02022* 02029* 02030* 02032* 02100* 02101* 02135
02160 02162 02274 02281 02314 02366 02406 02607
02785 02804 02809 02847 02850 02922 02938 02939
02945 02957* 02982 03072* 03093 03136 03290* 03291
03610* 03634 03641 03675 03689 03715 03722 03770
03804 03812 03819 03821 03823 03860 03886 03975*
03977* 04016 04018 04019 04060 04108 04210 04225
04237 04304 04549* 04553* 04574 04576 04643 04659
04691 04770 04840 04994 05129 05397* 05401* 05405*
05504 05511 05537 05650 05652 05760 05796 05823
05920* 05976 06378 06709* 06861* 06862* 06932 06957
07136 07177 07180 07238* 07239* 07531* 07995* 08010*
08041 08045 08046 08056 08146 08150 08153 08171
08179 08202 08207 08210 08278 08285 08430* 08464
08511 08526 08529 08559
CANCER DIAGNOSIS,ANGIOGRAPHY IN
02134 02366 03637 03647
CANCER DIAGNOSIS,BIOPSY IN
01285 01490 02249 02891 02910* 03325* 03705 03718
05423 05789 05793
CANCER DIAGNOSIS,ENDOSCOPY IN
01285 01333 01490 02768* 03647 03799* 05423 05560
CANCER DIAGNOSIS,LYMPHOGRAPHY IN
02845 03854 08050
CANCER DIAGNOSIS,RADIOLOGY IN
00198* 00219* 00303 00354* 00410 00455 00867 01195*
01199* 01262 01263 01285 01333 01461 01490 01780
02366 02758* 02845 03089 03290* 03637 03647 03693
03795* 03975* 03977* 04010 04059 04162 04555* 05400*
05423 05575 05641 05681
CANCER EPIDEMIOLOGY
00252 00338 00611 00637 00644* 00652 00751 00934
00984 01228 01304* 01312* 01387* 01490 02081 02100*
02196* 02274 02281 02904* 03075* 03987 04189* 04195*
04597* 04622* 04624* 04628* 04657 04670 04791 05088
05518* 05905* 06230* 06893 07196* 07649 08075* 08443*
08963
CANCER ETIOLOGY
00317* 00338 00593 00637 00644* 00764 00847* 00984
01285 01321* 01387* 01461 02067* 02100* 02229 02446
02982 03095 03203 03303 03549* 03809 03823 03846
03850 03854 04108 04113 04189* 04622* 04779 05518*
05650 05876 06008 06210 06621 06622 06624 08079*
CANCER IMMUNOLOGY
00215* 00271 00566* 00900* 01304* 01311* 03072* 03804
05147 05925* 07292 08145
CANCER IN CHILDREN
00616 00729 00754 01583 01780 02366 02402 03173
03346 03859 03880 04116 05332 05976 06008 07169
07268 07355
CANCER METABOLISM
05915* 06378
CANCER PATHOLOGY
00338 00369* 00455 00644* 01484 01490 01514 01580
02074 02075 02571 02729 02786 02903* 02938 02944
02955 03203 03290* 03393 03575 03576 03577 03647
03803 03854 04058 04059 04099 04162 04641 04663
04799 04800 04801 04994 05585 05630 05817 05830
06378 06921 08145 08189 08995
CANCER PROPHYLAXIS
00637
CANCER SURGERY
00219* 00321 00322 00354* 00382 00383 00417 00422
00426 00493 00577 00593 00604 00605 00611 00637
00639* 00643* 00652 00656 00660 00683* 01167 01285
01302 01320* 01329 01332 01335 01445* 01448* 01451*
01480 01483 01484 01490 01503* 01566 01697 01767
02029* 02067* 02074 02081 02082 02083 02085 02086
02092 02103* 02104* 02105* 02116 02268 02269 02270
02281 02308 02314 02365 02369 02498* 02552* 02896
02900* 02903* 02909* 02921 02933 02934 02936 02939
02940 02941 02942 02943 02944 02950 02957* 02968
03061* 03079* 03197 03203 03290* 03291 03315* 03393
03647 03741 03753 03762 03763 03770 03778 03783
03800* 03817 03821 03823 03854 03855 03858 03862
03969* 04004 04019 04052* 04096 04116 04188 04225
04239 04283 04604 04610 04635 04641 04642 04665
04691 04773 04799 04800 04801 04802 04848 04891
04941 04990 04996 05497 05501 05514* 05539 05567
05573 05574 05658 05762 05799 05817 05824 05827
05831 06175 06210 06395 06854 06899 06923 07136
07196* 07237* 07248* 07325 07355 07358 07359 08093
08120 08122 08147 08157 08169 08171 08181 08202
08208 08216 08217 08218 08234 08238 08259 08276
08277 08305 08320 08354 08462 08488 08500 08509
08510 08568 08576 08727 08985 09015

CANCER SURVIVAL RATES
00354* 00605 00644* 00683* 01320* 01445* 01448* 01480
01484 01490 01503* 01804 02062* 02074 02081 02082
02100* 02160 02269 02270 02281 02288 02314 02369
02498* 02871* 02883 02896 02903* 02909* 02936 02940
02948 03077* 03197 03753 03798* 03800* 03817 03823
03969* 03971* 04036 04052* 04058 04198* 04605 04643
04654 04669 04869* 04921 05022* 05088 05514* 05522*
05560 05574 05658 05744* 05914* 06797* 07101* 07102*
07196* 07248* 07520* 08075* 08106 08142* 08157 08166
08218 08434* 08500 08510 08835* 08963 05567 06849
07124 07355
CANCER TREATMENT
00219* 00382 00383 00422 00426 00450 00604 00605
00611 00644* 00656 00660 00969 01302 01320* 01329
01330 01332 01364 01451* 01454* 01484 01566 01678*
01721* 01729* 01735* 01736* 01800 02062* 02074 02086
02092 02100* 02105* 02160 02184 02274 02288 02308
02314 02340* 02365 02369 02379 02498* 02900* 02907*
02921 02934 02936 02939 02940 02941 02944 02957*
02968 02993 03061* 03079* 03197 03203 03290* 03291
03371 03549* 03741 03762 03763 03770 03778 03783
03800* 03823 03854 03855 03862 04004 04019 04036
04052* 04096 04116 04215 04239 04604 04627* 04635
04642 04773 04799 04848 04869* 04891 04990 05010
05088 05418 05567 05573 05574 05827 05831 05914*
05925* 06144 06210 06899 06926 07136 07325 07358
08093 08146 08157 08171 08181 08191 08222 08234
08237 08238 08259 08320 08510 08568 08710 08712
08902 08995 09015

CANCER TREATMENT,RADIATION THERAPY IN
02288 02883 02896 02950 06848 07520*
CANCER TREATMENT,RADIOTHERAPY IN
00433* 00605 00609 00616 01285 01302 01332 01490
01566 01726* 02081 02082 02083 02085 02086 02087
02184 02268 02270 02583 02871* 02907* 03647 03753
03817 04116 04605 04777 05542 05790 05826 06889
07705 08071* 08093 08121 08170 08450
CANCER,ABDOMEN
01726* 02032* 04237
CANCER,AGE FACTORS IN
00604 00683* 01448* 02955 03173 03753 03800* 04274*
04622* 04871* 05010 05088 06230* 07127 07540 08177
08722
CANCER,ANUS
00604 00605 00611 00623 02280 03077* 04003 07124
08050
CANCER,APPENDIX
04763*
CANCER,BILIARY TRACT
00219* 00867 00874 00969 01569 01699 02498* 03189
03197 03290* 03291 03303 03310 03596* 03637 04177*
04185 04283 04990 04996 05008 05137 06175 06183
06193 06220 06570* 07516
CANCER,BIOCHEMICAL DIAGNOSIS OF
00215* 05275* 06378 06621 07238* 07523*
CANCER,CLINICAL STUDIES OF
08010*

CANCER,DISEASES ASSOCIATED WITH
00647 00660 00729 00763 00847* 01228 01320* 01503*
01514 01725* 02249 02369 02607 03072* 03203 03840
04012 04059 04162 04237 06247 06378 06875 07501
07586 03852
CANCER,DUODENUM
01364 01380 02314 02972 02982 04058 04691 04703
05641 08568
CANCER,ESOPHAGUS
00296 00304 00317* 00321 00338 00343 00423 01278*
01279* 01282 01285 01292 01293 01300 01301 01302
01780 01800 02029* 02062* 02067* 02074 02075 02081
02082 02083 02085 02087 02092 02095 02881 02883
02890 02891 02896 02954 03472 03733* 03741 03746
03753 03762 03763 03764 03767 03770 03778 03783
03790 03791 03819 04054 04239 04282* 04597* 04602*
04604 04605 04609 04610 04614 04615 04620 04643
05088 05471* 05473* 05497 05501 05504 05511 05563
06249 06791* 06792* 06803 06829 06833 06856 08073*
08075* 08093 08120 08126
CANCER,EXPERIMENTAL STUDIES OF
07921 07922 08241
08240 08685

CANCER,GALLBLADDER
00847* 01677* 01678* 01703 04108 04186 04188 04698
04994 05010 05710* 06129* 06131* 06166 06193 06210
07497 08232 08829*
CANCER,GASTROINTESTINAL
00253 00900* 00934 00984 00996 01224 01780 01800
02281 02551* 02786 03371 03393 03610* 03675 03798*
03975* 03977* 04195* 04215 04597* 05429 05563 05728
06253 06288 06378 07101* 07108* 07532* 08041 08985
CANCER,LARGE INTESTINE
00238* 00293 00426 00568 00575 00577 00579 00584
00587 00593 00596 00599 00604 00605 00611 00616
00618 00624 00637 00683* 00984 01445* 01449* 01451*
01457 01461 01480 01484 01486 01490 01497* 01725*
01780 02269 02270 02274 02281 02543* 03061* 03072*
03087 03089 03114 03413 03873 03969* 03971* 03972*
03975* 03977* 03987 04010 04018 04023 04034 04036
04037 04195* 04212 04218 04239 04547* 04760* 04763*
04770 04773 04791 04799 04800 05088 05744* 05755
05772 05777 05788 05789 05790 05795 05796 05799
05826 05827 05830 05843 06144 06321 07101* 07102*
07108* 07124 07150 07177 07180 07523* 07995* 08443*
08464 08472 08500 08509 08510 08511 08534 08546
CANCER,LIVER
00139* 00215* 00219* 00683* 00684* 00685* 00686* 00704*
00729 00756 00763 00764 01196* 01217* 01218* 01230
01266 01551* 01557 01580 01605 01677* 01725* 01780
01800 01823 01933 01934 01943 02009* 02177 02340*
02360 02365 02366 02369 02379 02381 02402 02406
02492 02723 02729 02787 02904* 02921 03157* 03164*
03170* 03171* 03197 03198 03203 03214 03232* 03475
03549* 03565 03566 03586 03610* 03706 04096 04099
04105 04108 04113 04116 04155* 04162 04210 04283
04304 04411* 04412* 04503* 04549* 04553* 04559* 04577
04869* 04876* 04878* 04891 04909 05101* 05397* 05400*
05402* 05405* 05914* 05915* 05920* 05921* 05922* 05923*
05925* 05975 05976 06008 06035 06101* 06119 06409*
06570* 06701 07231* 07237* 07238* 07239* 07242* 07248*
07253* 07268 08638* 08639* 08640* 08711 08712 08722
08739 08942
CANCER,METABOLIC CHANGES IN
02101*
CANCER,METASTATIC
00219* 00290 00410 00422 00462 00575 00577 00604
00605 00609 00624 00643* 00656 00683* 00684* 00704*
00754 00789 00867 00880 01195* 01224 01282 01369
01384 01448* 01480 01503* 01566 01569 01605 01609
01735* 02005* 02010* 02029* 02105* 02145* 02152 02162
02177 02269 02272 02278 02366 02583 02610 02787
02809 02852 02891 02900* 02903* 02921 02934 02936
02940 02941 02945 02950 02955 02968 03077* 03087
03198 03203 03393 03610* 03741 03817 03821 03845
03880 04004 04058 04096 04105 04112 04116 04207*
04218 04222 04549* 04553* 04562 04574 04635 04661
04759* 04921 05332 05385 05397* 05423 05463 05550
05610 05751 05760 05765 05817 05851 05876 05914*
05921* 05923* 05975 06149 06166 06295 06860* 06875
06876 06881 06889 06936 07108* 07171 07174 07248*
07308 07363 07523* 07973* 08165 08189 08198 08218
08232 08237 08300 08480 08509 08534 08545 08942
08958 08995
CANCER,PANCREAS
00219* 00511 00643* 00644* 00647 00652 00655 00656
00660 01209* 01229 01257 01503* 01505* 01509 01514
01676* 01677* 01725* 01774 01780 01800 02005* 02008*
02178 02248 02308 02314 02527 02758* 02785 03136
03138 03157* 03189 03637 03693 03718 04052* 04054
04058 04059 04060 04074 04185 04207* 04298 04850
05397* 05418 05876 07196* 07207 08561* 08568 08579
CANCER,RECTUM
00203* 00407 00566* 00577 00593 00604 00605 00611
00623 00624 00637 00984 01445* 01448* 01452* 01480
01490 01497* 02268 02270 02278 02281 02288 03061*
03079* 03647 03705 03969* 03972* 04019 04036 04038
04195* 04706 04759* 04764* 04777 04791 04801 04802
04803 05088 05762 05767 05787 05791 05793 05799
05817 05824 05827 05831 05905* 06144 06350 07101*
07108* 07136 07177 08050 08443* 08450 08464 08510
08538 08546
CANCER,SMALL INTESTINE
00445 00455 00511 00636 01364 01380 01725* 01780
02145* 02158 02184 02229 02249 02289 02583 02774
02968 02972 02991 03038 03121 03403 03413 03854
03877 03885 03886 03908 03913 04195* 05397* 05616
05630 05639 05650 05652 05658 06957 08257* 08270
08276 08277 08278 08302
CANCER,STOMACH
00219* 00227* 00271 00305 00317* 00322 00353* 00354*
00364* 00367* 00369* 00370* 00374 00382 00383 00388
00410 00419 00422 00424 00426 00427 00470* 00493
00751 00785 00843 00984 01007* 01096* 01194* 01228
01282 01304* 01311* 01312* 01320* 01321* 01324 01329
01330 01332 01333 01335 01336 01609 01725* 01733*
01780 01782 01934 02005* 02013* 02022* 02029* 02090
02095 02100* 02101* 02103* 02104* 02105* 02109 02116
02131 02133 02135 02196* 02214 02610 02620* 02625*
02768* 02847 02896 02900* 02903* 02904* 02907* 02909*
02910* 02918 02920 02921 02922 02933 02934 02935
02936 02937 02938 02939 02940 02941 02942 02943
02944 02945 02948 02950 02954 02955 03346 03641
03689 03715 03718 03741 03783 03793* 03794* 03795*
03796* 03798* 03799* 03800* 03802* 03803 03804 03805
03806 03808 03809 03812 03817 03819 03823 03835
03840 03845 03850 03852 03854 03855 03856 03857
03858 03859 03860 03862 04195* 04239 04542* 04544*
04576 04584 04622* 04624* 04627* 04628* 04635 04641
04642 04643 04644 04645 04657 04659 04660 04661
04662 04663 04664 04665 04668 04669 04941 05088
05129 05397* 05416 05423 05501 05514* 05516* 05518*
05527 05534 05536 05537 05539 05540 05542 05547
05563 05564 05567 05571 05573 05574 05580 05584
05585 05710* 06755 06860* 06862* 06880 06907 06908
06919 06921 06923 06931 07046 07248* 07523* 08056
08060 08142* 08144 08145 08146 08147 08153 08157
08165 08169 08179 08181 08189 08190 08191 08194
08202 08208 08210 08216 08217 08218 08221 08354
CARBOHYDRATE ABSORPTION
00026* 00034* 00039 00040 00262 00520* 00538 00554
00555 01036* 01040* 01052 01060 01215* 01351* 01353*
01433 01435 01436 01440 01745 01839* 01848* 01869*
01989* 02024* 02235* 02238* 02250 02352* 02573 02815
02825 02827 03057 03200 03259* 03423 03482* 03492
03966 03967 04063 04314* 04317* 04406* 04566 05730
06226* 06319 06388 07064* 07069 07780* 07785* 07806
07808 08409* 08796
CARBOHYDRATE DIGESTION
00100* 00206* 00220* 01182* 01436 01440 01444 01839*
03405 03492 06674 07833
CARBOHYDRATE METABOLISM
00004* 00012* 00075* 00076* 00356* 00368* 00469* 00531
00562* 01040* 01180* 01181* 01523 01614 01627* 01725*
01741 01918 01943 02005* 02304* 02570 02593 02668
03053 03137 03259* 05351 05353 05735 05818 05877
05998 06172 06556 06637 06668* 06673 07958* 07962*
08605 08786*

CARBOHYDRATE METABOLISM,LIVER
00016* 00021 00112* 00117* 00124* 00141* 00142 00143
00154 00174 00231* 00729 00740 00749 00768* 00770*
01149* 01163 01537* 01549* 01655* 01817* 01921* 01924*
01925* 01927* 01928* 01929* 01939 01953 01977 01979
02191* 02342* 02346* 02390 02451 02702* 02705* 02706*
02718 02724 02733 03192 03542* 03544* 03547* 03571
04098 04157 04248 04402* 04421* 04443 04445 04446
04477 04482 05106* 05107* 05294* 05338 05340 05953
05969 06052* 06097* 07381 07881* 07882* 07893* 07903*
08796
CARBOHYDRATES
00893* 01935 06328 07867*

CARCINOGENESIS
00850* 00944 01007* 01609 03198 03586 06006 08687
CARCINOGENESIS,ESOPHAGUS
06829
CARCINOGENESIS,GASTROINTESTINAL
00979 07766
CARCINOGENESIS,LARGE INTESTINE
01484 04212 04760*
CARCINOGENESIS,LIVER
00138* 00155 00159 00782 00786 00789 01569 01624
01823 01825 01926* 01930* 01943 01945 01955 01978
02422 02434 02436 02443 02446 02696* 02718 02723
02725 03448* 03475 03549* 03564 03567 04129 04424*
04445 04496* 04503* 04505* 04862* 05101* 05147 05308
05314 05349 05356 05388 05928 05996 06023 06400*
06419 06420 06429 06590* 06648 07242* 07281 07773
08629* 08675 08734*
CARCINOGENESIS,PANCREAS
00655
CARCINOGENESIS,SALIVARY GLAND
02571
CARCINOGENESIS,SMALL INTESTINE
07767
CARCINOGENESIS,STOMACH
00424 01387* 01934 02923 03808 03840 03857 04622*
05516* 05518* 06918 08200 08974
CARCINOGENS
01624 01934 01943 01945 01955 01960 01982 02422
02434 02718 02722 02890 02923 03564 03567 03585
03808 03857 04212 04445 04505* 04609 04622* 05314
05349 06429 06590* 06918 08200 08675
CARCINOGENS,LIVER
05311
CARCINOID SYNDROME
SEE ALSO CARCINOIDS
SEE ALSO SEROTONIN
00601 00609 00622 00942 01382 01735* 01736* 02524
02583 02921 02958* 03403 04619 05610 05638 05651
05760 05851 06168 06315 08453
CARCINOIDS
SEE ALSO CARCINOID SYNDROME
02160 05626 05844 06412* 08501
CARCINOMA
00618 00623 00624 00976 01228 01312* 01461 01678*
01725* 01758 02160 02177 02178 02220 02268 02269
02274 02278 02280 02288 02360 02406 02527 02571
02610 02883 02896 02903* 02909* 02920 02945 02955
02968 02982 03038 03061* 03104 03114 03121 03197
03303 03310 03718 03762 03806 03808 03823 03850
03857 03885 03908 04019 04036 04058 04108 04113
04188 04210 04652 04661 04663 04664 04691 04996
05048 05563 05567 05586 05587 05762 05830 05976
06210 06830 06847 06919 07136 07209 07362 07497
07640 08050 08157 08222 08295 08302
CARCINOSARCOMA
02891 03588
CARDIOSPASM
SEE ACHALASIA
CARDIOVASCULAR SYSTEM
SEE ALSO PORTAL HYPERTENSION
00235* 00320 00335 00362* 00369* 00553 00560 00694*
00716 00802 00823* 00839 00886* 00899* 00945 00957
00963 00968 01207* 01218* 01223 01243 01283 01289
01297 01314* 01319* 01326 01348 01357* 01407 01412
01509 01524 01531 01545* 01546* 01549* 01576 01602
01606* 01638 01659 01662 01665 01666 01671 01713
01721* 01729* 01776 01777 01799 01839* 02012* 02017*
02076 02265 02305 02318* 02344* 02360 02409 02412
02435 02458* 02459* 02471* 02479 02480 02485 02487
02543* 02559 02593 02749 02756* 02790 02849 02850
02855 02887 02892 02897 02945 02989 02997 03032
03196 03227 03250 03279 03311 03329 03364 03366
03380 03381 03391 03409 03420 03426 03600* 03605
03615* 03702 03810 03849 04106 04117 04120 04230
04233 04236 04237 04250 04388* 04506* 04509* 04511*
04518 04534 04580 04588 04618 04629* 04696 04697
04726 04736 04774 04782 04885 04898 04915 04963*
04969 04971 04993 05015 05057 05207 05260* 05261*
05330 05647 05651 05654 05700 05754 05959 06020
06038 06113 06132* 06141 06169 06317 06458 06703
07170 07295 07406 07434 07451 07501 07583 07739
CARDIOVASCULAR SYSTEM
CONTINUED
07912 07946 07974 07976 07978 07979 07981 07988
08189 08233 08262 08362 08595* 08741 08754* 08820
08906 08968 08972
CAROTENE ABSORPTION
SEE ALSO VITAMIN A ABSORPTION
02025* 02906* 03495 04851* 05166* 07931
CARRIER STATE,SALMONELLOSIS
02550* 03296 06238* 06260 06348 07522* 07679 07682
08030 08917 09010
CARRIER STATE,TYPHOID FEVER
03334 06151
CATECHOLAMINE METABOLISM
01956 05691
CATHARTICS
SEE LAXATIVES
CECUM
SEE ALSO LARGE INTESTINE
00249 00256 00569 00574 00618 00626 01727* 01806
02265 03873 03984 03995 04694 04772 05198* 05374
05599* 05764 05768 06667* 08448 08469 08522 08533
08545
CELIAC ARTERY
01724*
CELIAC DISEASE
00220* 00262 00451 00464 00526* 00528* 00531 00547
00549 00558 01430* 01435 01441 01443 01770 02235*
02237* 02239* 02240* 02246 02248 02617 02763* 03044*
03045* 03046 03050 03054 03056 03349 03391 03442
03637 03871 04753 05036 05081 05446 05718* 05720*
07066* 07075 07078 07079 07081 07082 07084 07087
07094 07096 07724* 08265 08423 08428 08429 08969
07071 07628 07064*

CELLULAR INFILTRATION
00396 01032 01424 04272* 04418* 04425* 05100* 06232*
CENTRAL NERVOUS SYSTEM
SEE ALSO NEUROENDOCRINE CONTROL
00083* 00216* 00474* 00496 00691* 00714 00840 00922
00981 00982 01150* 01379 01406 01495* 01496* 01519
01547* 01564 01670 01768 01809 01857* 01861* 01881*
01902 02342* 02559 02790 02927 03003* 03010* 04101
04104 04819 05073 05252 05552 05689 05694 05916*
05921* 05923* 06233* 06307 06329 06355 06714* 07093
07297 07337 07426* 07595 07622 07643 07980 08165
08680 08989
CERULOPLASMIN
02812 04275*

CHEMICAL COMPOSITION,LARGE INTESTINE
00564*
CHEMICAL COMPOSITION,LIVER
00117* 00138* 01826 02624* 03446* 05328 05903* 06056*
06428 06609 06619 07898* 08621*
CHEMICAL COMPOSITION,PANCREAS
05103* 05104* 05271
CHEMICAL COMPOSITION,SALIVARY GLAND
01824 02745
CHEMICAL COMPOSITION,SMALL INTESTINE
02623* 03454*
CHEMICAL COMPOSITION,STOMACH
08137*
CHEMICAL TOXINS
SEE ALSO TOXIC EFFECTS ON BILIARY TRACT
SEE ALSO TOXIC EFFECTS ON ESOPHAGUS
SEE ALSO TOXIC EFFECTS ON GASTROINTESTINAL TRACT
SEE ALSO TOXIC EFFECTS ON LARGE INTESTINE
SEE ALSO TOXIC EFFECTS ON LIVER
SEE ALSO TOXIC EFFECTS ON PANCREAS
SEE ALSO TOXIC EFFECTS ON RECTUM
SEE ALSO TOXIC EFFECTS ON SALIVARY GLANDS
SEE ALSO TOXIC EFFECTS ON SMALL INTESTINE
SEE ALSO TOXIC EFFECTS ON STOMACH
00146 00159 00172 00769* 00779* 00788 00789 00979
01121* 01606* 01608 01613 01615 01905 02424 02427
02428 02431 02446 02448 02449 02714 02734 03165*
03223 03231 03579 03580 03668 04129 04453 04636
04935 04940 05312 05503 06293 06346 06809 06823
06894 06895 07378 07379 07387 07388 07747 08100
08242 08742
CHEMOTHERAPY,CANCER
00426 00462 00605 00609 00921 00945 01302 01330
01332 01454* 01490 01566 01609 01807 01933 02086
02268 02379 02933 02938 02944 02993 03371 03802*
03822 04051* 04116 04215 04225 04239 04277* 04537
04627* 04869* 05078 05098* 05914* 06856 06881 07726*
07918 07919 08072* 08170 08191
CHILDREN,ABDOMEN IN
01753 01778 01798 03628 05027* 05438 05919* 06275
06316 07581 07606 08254*

CHILDREN,ABDOMEN TRAUMA IN
00983 01359 03888 05066 05861 05901 06316
CHILDREN,ABSORPTION IN
02027* 06261

CHILDREN,ACUTE ABDOMEN IN
00485 00975 01779 01788 01811 06368 08956 06304
CHILDREN,AMEBIASIS IN
00723 04205* 06366 07706
CHILDREN,ANUS IN
00582 02612 03990 05803 07097* 07154

CHILDREN,APPENDICITIS IN
01779 02826 03329 03346 04030 04568 04741 04784
04807 04808 05065 08442* 08474 08496 08956 06368
CHILDREN,APPENDIX IN
02284 04762* 05771

CHILDREN,BILIARY DISEASES IN
02500* 08843 07475 08839
CHILDREN,BILIARY TRACT IN
00849* 00876 00879 01544* 01545* 02043 03288* 04167*
04181 04322* 04463 04989 04999 05000 05005 06071
06140 06146 06215 07493 07989*
CHILDREN,BLEEDING IN
00708* 00918 01811 01813 02609 02798 04093* 04192*
04925 05448 05496 05688 05924*
CHILDREN,CANCER IN
00616 00729 00754 01583 01780 02366 02402 03173
03346 03859 03880 04116 05332 05976 06008 07169
07268 07355
CHILDREN,CHOLECYSTITIS IN
08847 08867
CHILDREN,CHOLELITHIASIS IN
01715 02500* 04998 06145 06207 07493
CHILDREN,CIRRHOSIS IN
00707* 00708* 00841 00842 01640 01653* 02479 03141
03275 03277 03278 04158 04164 04976 07420 07462
07989* 08805
CHILDREN,DIARRHEA IN
SEE ALSO CELIAC DISEASE
00465 00544 00550 00558 00924 00932 00935 00970
00971 01433 01435 01441 01743 01744 01757 02248
02545* 02546* 02547* 02560 02578 02579 02613 02617
02840 03054 03056 03317* 03349 05021* 05024* 05030*
05728 06355 06359 06361 07638 07658 07710 08927
08969 08971
CHILDREN,DIGESTION IN
00919 02573 05726 05730
CHILDREN,DUODENUM IN
02966 03627 08313
CHILDREN,DYSENTERY IN
03349 05021* 05067 06385 07563
CHILDREN,ENTERITIS IN
01803 07077
CHILDREN,ENTEROCOLITIS IN
00924 01727* 02267 08433*
CHILDREN,ESOPHAGUS IN
00327 00329 00331 00333 00339 00350 01290 01295
01296 02063* 02887 03736* 03752 03765 03772 03773
03774 03775 03776 03827 04596* 05476 05478 05480
05496 06802 06820 06824 06831 08079* 08081 08091
08107 08111 08112 08113 08114 08115 08116 08117
08118 08119 08131
CHILDREN,GALLBLADDER DISEASES IN
08840 08841
CHILDREN,GALLBLADDER IN
00882 01715 02028* 04170* 07496 08847 08852
CHILDREN,GASTROENTERITIS IN
00973 01004 01720* 01734* 01750 02238* 02579 04245
06306 06770 07535* 07592 07710 08956
CHILDREN,GASTROINTESTINAL DISEASES IN
00918 01743 01744 02564 03379 05037 06240* 06253
07075 07094 08922 08971 09021
CHILDREN,GASTROINTESTINAL TRACT IN
00278 00891* 00932 01368 01754 01765 01788 01789
01790 01798 01813 02041 02044 02076 02547* 02561
02562 02572 02573 02574 02577 02578 03326* 03346
03361 03630 04539 04561 07588 07609 07635 07649
07692 08174 08279 08429 08916 08960 08997
CHILDREN,HEPATITIS IN
00879 01545* 01548* 01553* 02459* 03158* 03225 03243
03244 04933 04959 06071 06075* 08651
CHILDREN,HERNIA IN
01290 02561 03076* 03346 03435 05066 05496 06262
06313 06363 07971*
CHILDREN,JAUNDICE IN
00705* 00775* 01597 01598 02367 04953 05985 06036
06153 06203
CHILDREN,LARGE INTESTINE IN
00581 00621 01456 02277 03084* 03983 03984 03986
04769 05065 05085 05399* 05753 05761 05813 07118
07156 08442* 08465 08516 08540 08541 09020
CHILDREN,LIVER DISEASES IN
05449 06015 06020 08702
CHILDREN,LIVER ENZYMES IN
01639
CHILDREN,LIVER IN
00707* 00743 00754 01009* 01548* 01576 01583 01958
02357 02368 02384 02385 02838 03158* 03164* 03178
04115 04286 04322* 04463 04887 04893 04900 04925
04926 04927 04950 05332 05919* 05969 05973 06032
06044 06071 06107 06730 07295 07305 07365 07475
07943 08694 08727 08730* 08812
CHILDREN,MALABSORPTION IN
00220* 00465 00544 00545 00546 00548 00550 00558
01433 01435 01441 01548* 01754 01803 02238* 02243
02248 02560 03043* 03054 03057 03132* 03720 03871
03966 04750* 04756 05726 05727 05730 06385 07062*
07064* 07066* 07071 07094 07622 08410* 08419 08428
08969
CHILDREN,PANCREAS IN
00642* 01511 02305 03130* 04053* 04831* 04835 04841
04845 04847 05000 05861 05875 05899 07205 07528*
08572 08573
CHILDREN,PANCREATITIS IN
04073 04837 05895 05901 07225
CHILDREN,PARASITIC DISEASES IN
00973 01748 01791 01808 02608 03405 04260 05084
05646 07545 07550 07551 07555 07571 07647 08702
08927 08943 08968 08971 09024
CHILDREN,PEPTIC ULCERS IN
00277 00485 01322 01415 01778 01811 02026* 04556*
04741 05701 05703 06549 07000* 07028 08353 08381
08960
CHILDREN,PERITONITIS IN
05076 07564
CHILDREN,PORTAL HYPERTENSION IN
00708* 04110 04115 04914 05448 05449 05970 06039
07305 08704 08812
CHILDREN,RECTUM IN
00567* 00582 01475 03976* 05787 08440* 08490 08491
CHILDREN,SALIVARY GLANDS IN
00298 06384
CHILDREN,SALMONELLOSIS IN
01734* 01778 05034 08512 08944
CHILDREN,SERUM HEPATITIS IN
00775*
CHILDREN,SHIGELLOSIS IN
01734* 02548* 08903
CHILDREN,SMALL INTESTINE IN
00220* 00437* 00457 00465 00558 01183* 01358 01359
01363 01365 01376 01865* 02142 02145* 02155 02627*
02763* 02961* 02963* 02979 03319* 03344 03492 03629
03719 03825 03871 03878 03880 03881 03887 03895
03912 04678 04680 04687 04689 05065 05085 05420
05613 05633 05646 05703 06036 06268 06364 06716*
06973 06974 07064* 07658 07969 08256* 08266 08298
08306 08573 09020
CHILDREN,STOMACH IN
00085* 00398 00399 00401 00408 00412 01099 01310*
02136 02142 02818 02946 03820 03825 03829 03841
04341 04596* 04636 05500 05579 06287 06549 08139*
08175 08176 08211 08213
CHILDREN,SURGERY IN
01470
CHILDREN,TYPHOID FEVER IN
03334 03340 03422
CHILDREN,ULCERATIVE COLITIS IN
00633 03117* 04045 04821 04826 05835 05836 07187
08512
CHILDREN,ULCERS IN
05674 08517
CHILDREN,VIRAL HEPATITIS IN
00792* 00796 00799 01626* 01639 01640 01641 01778
02453* 03245 04557* 04906 04950 04953 05950 07390*
07403 07415 07420 07421 08012 08751* 08769 08770
08771 08773 08776 08778 08956
CHILDREN,VOMITING IN
01322 04596* 05042
CHLORIDE ABSORPTION
00030* 00068* 00603 00658 01186 04309* 06179 07781*
CHLORIDE METABOLISM
08363
CHLORIDE SECRETION,PANCREAS
00096* 00101* 01912*
CHOLANGIOGRAPHY
00210* 00212* 00218* 00248 00270 00272 00282 00283
00300 00307 00415 00679* 00846* 00865 00872 00874
00879 00881 01207* 01212* 01213* 01227 01239 01243
01247 01253 01266 01515 01570 01676* 01679* 01685
01689 01692 01715 01717 02028* 02040 02347* 02497*
02756* 02784 02800 02819 02832 02856 02860 03281*
03285* 03290* 03294 03297 03299 03305 03306 03311
03609* 03611* 03665 03687 03693 03712 03713 03882
04117 04166* 04174* 04176* 04185 04187 04573 04589
04592 04836 04989* 05124 05433 05441 05466 05608
05948 05968 05987 06147 06154 06167 06171 06188
06192 06200 06204 06205 06209 06418 06721 06722

CHOLANGIOGRAPHY
CONTINUED
06749 06773 06781 06981 07197* 07230* 07467* 07468*
07474 07477 07491 07498 07505 07507 07510 07901*
08001* 08035 08042 08045 08057 08058 08660 08671
08701 08826* 08832* 08836 08858 08862 08866 08880
06175

CHOLANGITIS
00703* 00848* 01533* 03028 03215 04318* 04703 04888
04939 05012 06206 06594* 07472* 07503 07513 07517
08660 08839 08886
CHOLECYSTECTOMY
SEE ALSO GALLBLADDER SURGERY
00115* 00210* 00407 00657 00844* 00846* 00848* 00851*
00853 00855 00860 00861 00862 00873 00875 00877
00881 01712* 01232 01526 01577 01676* 01677* 01678*
01702 01703 01704 01710 01715 01717 02111 02112
02513 02514 02515 02518 02523 02526 02529 02534
03281* 03287* 03294 03296 03299 03304 03807 04131
04166* 04173* 04182 04188 04989 04995 05124 05427
06013 06127* 06130* 06132* 06136* 06145 06148 06149
06155 06165 06169 06183 06186 06187 06191 06197
06207 06211 06213 06214 06257 06289 06746 07100*
07468* 07470* 07473* 07483 07497 07500 07502 07509
07522* 07810* 08634* 08826* 08827* 08837 08860 08877
08883
CHOLECYSTITIS
00239* 00844* 00847* 00848* 00850* 00851* 00855 00859
00860 00862 00873 00875 00878 00880 00992 01217*
01230 01232 01473 01479 01526 01535* 01536* 01556
01570 01600 01633 01679* 01680* 01704 01708 01710
01715 02012* 02030* 02047 02500* 02501* 02508 02515
02516 02523 02526 02529 02533 02534 02538 03192
03215 03294 03295 03301 03309 03310 03311 03343
03497* 03604* 03638 03657 03851 04085* 04095* 04166*
04168* 04173* 04183 04187 04236 04260 04264 04276*
04987 04989 04999 05001 05002 05010 05019 05398*
06071 06127* 06134* 06145 06148 06156 06157 06163
06179 06196 06207 06212 06215 06340 06343 06368
06376 06473* 07385 07470* 07471* 07473* 07481 07492
07509 07511 07637 07975 08602 08634* 08674 08826*
08830* 08835* 08839 08840 08841 08844 08848 08852
08859 08860 08861 08871 08872 08874 08876 08877
08883 08886 05006 05965
CHOLECYSTITIS DIAGNOSIS
01677* 04177*
CHOLECYSTITIS ETIOLOGY
06134*
CHOLECYSTITIS IN CHILDREN
08847 08867
CHOLECYSTITIS TREATMENT
01677*
CHOLECYSTOGRAPHY
00248 00270 00275 00872 00873 00882 01212* 01237
01243 01683 01703 01705 01756 02383 02843 03294
03497* 03611* 03712 03956 04183 06713* 06754 06768
07473* 07479 08017 08042 08834* 08849
CHOLECYSTOKININ
00053* 00363* 01065 01071* 01102 01187 03509* 03870*
04374 04486* 04522 05191* 05193* 06530* 07810* 07845*
07869* 08061
CHOLEDOCHAL CYST
07469*
CHOLEDOCHOLITHIASIS
02504* 05441 07467* 07488
CHOLELITHIASIS
00250 00407 00425 00774* 00817* 00854 00866 00878
01209* 01561 01680* 01683 01698 01714 01719 02326*
02367 02509 02526 02535 02536 02537 02538 02550*
02599 02856 02860 02984 03188 03189 03215 03265*
03305 03306 03310 03311 03364 03609* 03865* 03910
04085* 04091* 04131 04166* 04173* 04174* 04182 04185
04188 04236 04416* 04510* 04916 04922 04983* 04986*
05001 05008 05009 05016 05017 05418 05441 05609
05777 05898 05967 06131* 06135* 06139* 06148 06152
06154 06167 06170 06177 06180 06183 06186 06190
06213 06216 06219 06232* 06238* 06251 06713* 06764
06946* 07056* 07261 07306 07466* 07467* 07468* 07470*
07473* 07474 07482 07483 07485 07490 07492 07495
07500 07503 07506 07508 07512 07517 07522* 08660
08831* 08833* 08834* 08835* 08838 08845 08847 08848
08853 08854 08861 08865 08884 08886 08996 07975
CHOLELITHIASIS COMPLICATIONS
01706 05020
CHOLELITHIASIS DIAGNOSIS
00210* 00213* 00239* 00275 00848* 00851* 00880 01218*
01258 01677* 01679* 01685 01687 01689 01691 01703
02011* 02016* 03217* 03665 04174* 04177* 04183 04573
04623* 04853* 04998 05415 06172 06713* 08826* 08830*
CHOLELITHIASIS EPIDEMIOLOGY
02196* 04998
CHOLELITHIASIS ETIOLOGY
00123* 00133* 00363* 01147* 01533* 01687 01689 01690
01692 01693 01694 01695 01700 01701 02196* 02197*
04416* 04510* 04998 06143 06172 07493 07884*
CHOLELITHIASIS IMMUNOLOGY
01535*
CHOLELITHIASIS IN CHILDREN
01715 02500* 04998 06145 06207 07493
CHOLELITHIASIS PATHOLOGY
00880 01685 01692 01693 01694 01695
CHOLELITHIASIS SURGERY
00210* 00679* 00861 00881 01685 01687 01688 01689
01690 01691 01692 01693 01695 02339 02531 03282*
04085* 04168* 04171* 04172* 04173* 04174* 04853* 06145
06209 07536* 08563* 08836
CHOLELITHIASIS TREATMENT
00853 00855 00869 01577 01676* 01677* 01679* 01681*
01688 01690 01718 02499* 02506* 02507 02531 03297
04166* 04172* 04174* 04178 04180 04996 04998 06197
06209 06214 07488 07615 08888
CHOLELITHIASIS,AGE FACTORS IN
06143 06155
CHOLELITHIASIS,DISEASES ASSOCIATED WITH
00678* 00746 00847* 00856 00862 00880 01355* 01392*
01678* 01679* 01703 01706 01707 01710 02302* 02504*
02516 02528 03156* 03296 04993 06139*

CHOLERA
00929 00974 02554* 02988 03368 03377 03423 03427
03429 03601* 05605* 05649 06226* 06234* 06389 06393
07547 07570 07598 07661
CHOLERESIS
06228*
CHOLERETIC AGENTS
01113* 01976 02420* 02506* 04464 05297*

CHOLESTASIS
00363* 00692* 00697* 00698* 00705* 00762 00772* 00774*
00778* 00784 00798 00844* 00878 01147* 01208* 01494*
01539* 01543* 01545* 01548* 01553* 01571 01577 01610
01616 01700 01938 02359 02380 02398 02413 02426
02465 02757* 02819 03188 03190 03449* 03532* 03706
04123 04552* 04892 04908 04956 04981* 05007 05011
05120 05121 05122 05123 05293* 05316 05322 05324
05390 05912* 05937 05943 05946 05947 05948 05981
05982 05985 06081 06090 06142 06153 06161 06178
06223 06396* 06473* 07332 07345 07465* 07466* 07503
07748 08065* 08698 08825*
CHOLESTEROL
SEE ALSO HORMONAL CONTROL OF GALLBLADDER
SEE ALSO LIVER METABOLISM
00100* 00123* 00133* 00186 00866 01184 01558 01666
01680* 01683 01700 01701 01714 01719 01760 01809
01985 02434 02526 02639 02666 02728 02731 02733
02734 03312 03481* 04107 04109 04406* 04414* 04416*
04472 04510* 04557* 05280* 05292* 05322 05334 05533
06180 06190 06238* 06328 06573* 06656 06755 07273
07371* 07450 07451 07466* 07807 07914 07944 08694
08696 08833*
CHOLESTEROL ABSORPTION
00028* 00041 00122* 00184* 00193 00434* 00436* 01042*
01357* 01371 01372 01373 01374 01712 03483* 04995
05170 05171 07907
CHOLESTEROL METABOLISM
00434* 02235* 06143 07901* 08882 08929
CHOLESTEROL METABOLISM,LIVER
00122* 00153 00171 00193 00436* 00829* 01125* 01544*
01983 01985 02648 02666 02707* 02747 02807 03245
03483* 03543* 03559 04406* 04416* 04442 04510* 04557*
04987 05171 05302 05334 05404* 05953 06572* 06583*
06585* 07912 08642*
CHOLESTEROL SYNTHESIS
00122* 00153 00189 01711 01712 01983 03483* 04406*
04414* 04416* 05305 05324 06583* 06585* 07485
CHOLESTEROL,BLOOD
06228*
CHOLESTEROL,SERUM
00122* 00189 01737 08929
CHOLINERGIC AGENTS
00057 00102* 01087* 01112* 01870 02113 02660 02661
03385 03516* 04538 05195* 05196*
CHRONIC HEPATITIS
00211* 00709* 00710 00714 00739 00801 01206* 01225
01494* 01538* 01542* 01551* 01563 01578 01581 01627*
01633 01635 01640 01644 02014* 02019* 02341* 02344*
02387 02394 02421* 02440 02441 02444 02455* 02456*
02460* 02787 03217* 03236* 03247 03248 03252 03608*
03666 03706 04141 04554* 04572 04879* 04904 04906
04951 04952 04959 05404* 05965 05980 06043 06071
06074* 06075* 06111 06113 06121 07251* 07261 07262
07263 07276 07287 07289 07307 07315 07345 07377
07391* 07395* 07399 07417 07425* 07441 07900* 08018
08663 08688 08693 08697 08753* 08777

CHRONIC PANCREATITIS
00019 00562* 00662* 00665* 00667* 00669 00672 00675
00676 01257 01402 01517* 01520 01525 01526 01602
02303* 02317* 02319* 02330 02332 02333 02334 02336
02338 02499* 02691* 02692* 03138 03143* 03150 03151
03152 03439 03677 03959* 04067* 04071 04074 04075
04076 04078 04587 04851* 04854* 04855 04856 04857
05265 05418 05464 05666* 05856 05866 05881* 05887
05893 05894 05899 05900 06167 06767 07089 07214
07222 07519 08561* 08564* 08571 08613
CHRONIC PANCREATITIS DIAGNOSIS
07527*
CHRONIC VIRAL HEPATITIS
03262* 03263* 04148 04562 04951 04952
CHYMOTRYPSIN
00185*
CHYMOTRYPSIN SECRETION,PANCREAS
01111* 02058 04386* 04391 04393 04394 04397 06553*

CIRCULATION CIRRHOSIS
06101*
CIRCULATION IN CIRRHOSIS
00831 00839 01587 01590 01591 01647* 02553* 03270
03283* 04135* 04160 04161 04501* 04580 04962* 04963*
05325 05487 06099* 06100* 07278 07438 07459 07460
08784* 08807
CIRCULATION IN HEPATITIS
01636 02344* 02356 04135*
CIRCULATION IN JAUNDICE
01713
CIRCULATION IN PANCREATITIS
00663* 01529 01530 01531 02323* 03153 04388* 05882*
07218
CIRCULATION IN PEPTIC ULCERS
02685
CIRCULATION IN PORTAL HYPERTENSION
06682*
CIRCULATION IN ULCERATIVE COLITIS
01492*
CIRCULATION STUDY TECHNIQUES,GASTROINTESTINAL
01192 04521
CIRCULATION,ABDOMEN
02032* 07599 08994
CIRCULATION,BILIARY TRACT
08822
CIRCULATION,ESOPHAGUS
01280* 01673 02075 04501* 04534 06827 07973*
CIRCULATION,GALLBLADDER
06212 07975
CIRCULATION,GASTROINTESTINAL
00265 00405 00502 00901* 00923 00952 00962 01079
01446* 01724* 01799 02225 02572 02997 03324* 03409
04517 04525 05080 05449 06490 06693 07040 07309
07542 07587 07599 07978 07987 08713 08972 02370
02621*

CIRCULATION,HORMONAL CONTROL OF
01191
CIRCULATION,LARGE INTESTINE
00207* 00348 00931 01450* 01467 01485 01487 02064*
02282 02656* 02742* 03353 03420 04010 04540 04781
05737* 05831 06688* 07157 07167 07974 07987 08432*
08906
CIRCULATION,LIVER
00010* 00099* 00182* 00223* 00231* 00677* 00686* 00700*
00702* 00706* 00713 00715 00716 00721 00725 00744
00747 00750 00753 00770* 00783 00822* 00827* 00839
01166 01174 01191 01243 01297 01509 01533* 01539*
01541* 01549* 01565 01566 01575 01587 01588 01590
01595 01596 01605 01606* 01652* 01659 01668 01713
01724* 01781 01805 01928* 01939 02010* 02012* 02066*
02348* 02349* 02350* 02353* 02371 02373 02379 02384
02385 02390 02396 02401 02412 02424 02459* 02480
02621* 02631 02703* 02713 02714 02744 02749 02848
03155* 03159* 03167* 03191 03196 03268 03283* 03448*
03449* 03450* 03458* 03474 03557 03600* 03603* 03605
03635 03683 03702 04114 04119 04120 04285 04302
04318* 04385* 04460 04461 04498* 04519 04532 04533
04554* 04562 04580 04860* 04885 04895 04897 04898
04938 04962* 04963* 04969 04972 05107* 05141 05144
05274* 05321 05331 05348 05376* 05379* 05380* 05381*
05382* 05383 05385 05427 05489 05634 05906* 05929
05952 05959 05962 05994 06006 06022 06051* 06100*
06115 06414 06575* 06682* 06684* 06685* 06687* 06690*
06700 06701 07229* 07235* 07269 07278 07312 07423*
07430* 07436 07460 07746 07893* 07977 07978 07981
07983 08036 08618* 08659 08683 08783* 08786* 08787*
08799 08807
CIRCULATION,LYMPH
01428* 01652*
CIRCULATION,MESENTERY
00207* 00577 00691* 00886* 01377 01467 01483 01605
01724* 01799 01835 02174 02572 02621* 02997 03353
03368 03391 03603* 04177* 04506* 04521 04697 05378*
05625 05738* 06101* 06303 06353 06683* 06704 07637
CIRCULATION,MESENTERY
CONTINUED
07988 08244* 08432* 08713 08994
CIRCULATION,PANCREAS
00105 00208* 01518 01522 01530 02318* 02621* 03810
04388* 04396 06456 06703 07976 08594* 08595*
CIRCULATION,PORTAL
00179* 00182* 00204* 00214* 00243 00245 00260 00687*
00702* 00721 00744 00821* 00823* 00839 00899* 00957
01036* 01161 01191 01518 01533* 01549* 01587 01591
01605 01652* 01939 02373 02703* 02744 03167* 03172*
03196 03474 03562 03735* 04119 04157 04388* 04460
04497* 04501* 04518 04532 04533 04535 04570 04889
04962* 04967 05141 05144 05152 05157* 05347 05379*
05851 05962 06022 06041 06060 06102* 06104 06113
06461 06685* 06706 07269 07305 07977 07979 07983
08036 08037 08038 08532 08654 08657 08713 08884
CIRCULATION,RECTUM
03116* 03698
CIRCULATION,SMALL INTESTINE
00017 00179* 00181* 00458 00931 00949 01012* 01025*
01350* 01357* 01377 01385 01827 01835 01867* 02143*
02621* 02742* 02743* 03353 03391 03420 03460* 03902
04500* 04506* 04507* 04521 04531 04540 04859 05654
05738* 06450 06456 06686* 06688* 06704 06943* 06980
06982 06985 06992 07039 07974 07987 08264 08280
08286 08906
CIRCULATION,STOMACH
00367* 00369* 00949 01025* 01192 01305* 01390* 01821*
02685 02741* 03830 04501* 04511* 04531 04534 04632*
04717 05231* 05236* 05515* 05546 06450 06529* 06934
08122 08151 08189
CIRCULATION,TOXIC EFFECTS ON
03223
CIRRHOSIS
SEE ALSO ALCOHOL EFFECT ON LIVER
SEE ALSO ASCITES
SEE ALSO ESOPHAGUS VARICES
SEE ALSO LIVER COMA
SEE ALSO PORTAL HYPERTENSION
00625 00732 01494* 01551* 01581 01659 01934 01940
02008* 02358 02411 02438 02444 02492 02493 02709*
02787 02827 02848 02885 03126 03183 03187 03195
03200 03203 03210 03212 03213 03286* 03534* 03589
03637 03735* 04100 04112 04113 04141 04155* 04159
04252 04275* 04311* 04429* 04545* 04623* 04865* 04874*
04882 04897 04901 04906 04922 04961* 04969 04974
04977 04981* 05105* 05167 05318 05355 05443 05479
05908* 05926* 05936 05937 05950 05952 05961 05964
05980 06006 06011 06012 06029 06046 06075* 06093*
06106 06108 06112 06113 06116 06119 06120 06141
06202 06279 06341 06473* 06839 07232* 07313 07339
07348 07356 07371* 07381 07391* 07425* 07443 07445
07447 07451 07457 07458 07461 07575 07600 07602
07639 07747 07990* 08018 08659 08667 08677 08703
08775 08783* 08793 08794 08803 08807 08816 08819
08820
CIRRHOSIS COMPLICATIONS
07437 07442 07716
CIRRHOSIS DIAGNOSIS
00146 00205* 00222* 00223* 00245 00246 00272 00279
00291 00294 00699* 00817* 01196* 01209* 01217* 01218*
01242 01657 01661 01671 01674 02001* 02004* 02010*
02012* 02030* 02045 02050 02406 02797 02812 02831
02851 02852 02854 03041* 03259* 03261* 03265* 03267*
03275 03613* 03617* 03654 03706 03714 04152* 04162
04280* 04552* 04554* 04562 04572 05181 05404* 05792
05954 05999 06095* 06102* 06111 06123 07329 07428*
07429* 07431* 07435 07436 07448 08000* 08721 08801
08821
CIRRHOSIS DIAGNOSIS,RADIOLOGY IN
04966 08792
CIRRHOSIS EPIDEMIOLOGY
00751 00834 03118* 03263* 04153* 06117 08782* 08801
08821
CIRRHOSIS ETIOLOGY
00759 00789 00824* 00825* 00833 00834 00836 00841
00842 01562 01646* 01657 01658 02455* 02474* 02475*
02476* 02494 03232* 03260* 03263* 03264* 03265* 03275
03277 03278 03549* 04123 06103 06125 07251* 07300
07427* 07433 07441 07452 07453
CIRRHOSIS IMMUNOLOGY
02018* 02019* 04281* 04929 06081 06095*
CIRRHOSIS IN CHILDREN
00707* 00708* 00841 00842 01640 01655* 02479 03141
03275 03277 03278 04158 04164 04976 07420 07482
07989* 08805
CIRRHOSIS PATHOLOGY
00826* 00834 01652* 01661 01674 02406 02478 02492
02495 03249 03261* 03265* 03267* 03269 03270 03274
03278 03622 04161 04972 04978 04979 05234* 05414
06100* 06104 06114 06115 06138* 06406* 07329 07426*
07431* 07439 07444 07460 07758 08722 08785*

CIRRHOSIS TREATMENT
00707* 00724 00737 00745 00819* 00820* 00822* 00830
00832 00835 00838 00840 00843 01289 01542* 01543*
01627* 01640 01646* 01650* 01651* 01652* 01654* 01656
01657 01660 01663 01666 01667 01670 01672 01674
01721* 01771 02341* 02363 02470* 02477* 02601 02769*
03162* 03268 03275 03568 04162 04607 04919 04923
04962* 04964* 04967 04972 05429 05999 06017 06092*
06096* 06105 06570* 07321 07434 07442 07453 07900*
08699 08723 08782* 08784* 08791 08802 08808 08818
CIRRHOSIS,AGE FACTORS IN
00699* 08811
CIRRHOSIS,ALCOHOL IN
00173 00750 01562 01605 01665 01674 01721* 02473*
02489 03208 03269 03271 04125 04150* 04155* 04502*
04882 04960* 04968 06092* 06096* 06105 06125 07369*
07384 07433 07441 07463 08781* 08786* 08806 08817

07257*

CIRRHOSIS,ASCITES IN
00750 00819* 00821* 00830 00834 00836 00838 00843
01215* 01588 01648* 01650* 01656 01660 01661 01662
01663 01665 01669 01934 02382 02470* 02471* 02474*
02482 02495 02797 03259* 04162 04964* 04967 04973
04975 04978 05234* 05926* 06028 06060 06067 06096*
07423* 07442 08784*
CIRRHOSIS,BILIARY
00173 00817* 00841 01553* 01561 01562 01645 01657
01672 02019* 02387 02426 02486 04319* 05324 06213
07287 07432 07450 08065*
CIRRHOSIS,BILIARY TRACT
03265* 03270 04281* 04562 06067 08692
CIRRHOSIS,BIOCHEMICAL DIAGNOSIS OF
01206* 03714 04135* 07429* 07448
CIRRHOSIS,BLOOD COAGULATION IN
01289 01649* 02487 02491 03608* 04157 04971

CIRRHOSIS,CIRCULATION IN
00831 00839 01587 01590 01591 01647* 02553* 03270
03283* 04135* 04160 04161 04501* 04580 04962* 04963*
05325 05487 06099* 06100* 07278 07438 07459 07460
08784* 08807 06101*
CIRRHOSIS,CLINICAL STUDIES OF
08065*
CIRRHOSIS,DISEASES ASSOCIATED WITH
00312* 00699* 00704* 00707* 00714 00823* 00824* 00827*
00834 00837 00843 00933 00958 01291 01661 01663
01665 01668 01670 01671 02003* 02025* 02066* 02097*
02350* 02360 02471* 02473* 02474* 02478 02479 02480
02487 02491 03170* 03258* 03260* 03262* 03266* 03269
03270 03274 03276 04104 04154* 04155* 04159 04161
04162 04163 04165 04748* 04865* 04970 04976 04980
05115* 05240 05429 05926* 05958 06107 06109 06110
06118 06121 06124 07251* 07406 07430* 07446 07449
07452 07458 08798 08823
CIRRHOSIS,ELECTROLYTE METABOLISM IN
00818* 00832 01654* 01662 01663 01669 04980 07438
07442
CIRRHOSIS,EXPERIMENTAL
00704* 00828* 00829* 01569 01609 02475* 05353 06066
07441 08811
CIRRHOSIS,EXPERIMENTAL STUDIES OF
07427* 08814
CIRRHOSIS,IMMUNOLOGY IN
00211* 00710 00824* 01552* 02476* 06107 07733* 08788*
CIRRHOSIS,LIVER
06701 07382
CIRRHOSIS,METABOLIC CHANGES IN
00173 00709* 00832 00842 00899* 01047* 01206* 01559
01590 01647* 01648* 01649* 01654* 01655* 01664 01674
01976 02004* 02004* 02014* 02019* 02236* 02342* 02382
02387 02460* 02472* 02483 02484 02485 02486 02487
02553* 02709* 02797 02812 03178 03236* 03249 03259*
03261* 03273 03486* 04104 04135* 04157 04158 05325
05414 06067 06093* 06097* 07424* 07442 08786*
CIRRHOSIS,METABOLISM CHANGED IN
05353
CIRRHOSIS,METABOLISM IN
02694*
CIRRHOSIS,MICROORGANISMS IN
00824*
CIRRHOSIS,POSTNECROTIC
07257*
CIRRHOSIS,WATER METABOLISM IN
00830 01650*

COBALT
01338
COBALT ABSORPTION
01047*
COLITIS
SEE ALSO ENTERITIS

COLITIS
CONTINUED
SEE ALSO ENTEROCOLITIS
SEE ALSO GASTROENTERITIS
SEE ALSO REGIONAL ENTERITIS
02294 02853 05765 06240* 07151 07157 07167 07580
07708 08438* 08459
COLITIS COMPLICATIONS,ULCERATIVE
00598 00632 00637 00948 01500 01804 02297* 02300
03120* 03123 03127 03445* 04041* 04050 04708* 04818*
05754 05777 05832* 05837 05838 06942* 06987 07185
08027 08553
COLITIS DIAGNOSIS
03068*
COLITIS DIAGNOSIS,RADIOLOGY IN ULCERATIVE
00203* 00635 04045 05846
COLITIS DIAGNOSIS,ULCERATIVE
00224* 00293 00630* 00632 00633 01476 01492* 01494*
01501 01804 02046 02254* 02298* 02300 03120* 04048
04050 04817* 05747 05759 05800 05835 05837 05839
05841
COLITIS EPIDEMIOLOGY,ULCERATIVE
01495* 01496* 01501 01804 02297* 02298* 04042* 04044*
04828 05842 05843

COLITIS ETIOLOGY,ULCERATIVE
00594 00630* 00631 00638 01491* 01495* 01496* 01499
01501 01502 01804 03120* 04008 04014 04045 04046
04048 04823 04825 04828 05143 05835 07190 07191
08549 03118*

COLITIS IMMUNOLOGY,ULCERATIVE
00224* 00630* 00631 01491* 01493* 01494* 01502
COLITIS IN CHILDREN,ULCERATIVE
00633 03117* 04045 04821 04826 05835 05836 07187
08512
COLITIS PATHOLOGY,ULCERATIVE
00635 01472 01499 01500 01745 01804 02300 02301
03116* 03120* 03127 04008 04045 04818* 04825 05747
05832* 05840 05843 07183* 07184*
COLITIS RADIOLOGY,ULCERATIVE
02300 05837
COLITIS SURGERY,ULCERATIVE
00634 00636 01493* 01494* 01497* 01804 02301 03117*
03119* 03122 03123 03127 04041* 04049 04706 04708*
04765* 04826 05832* 05838 05843 06942* 06987 08550
08552 08554 08558
COLITIS TREATMENT,ULCERATIVE
00594 00628* 00633 00634 00636 00637 00638 00977
00993 01492* 01496* 01498 01501 01721* 01804 02300
02301 03117* 03125 03127 03376 04048 04049 04708*
04819 04820 04822 04824 04826 04827 05752 05832*
05845 06367 07186 07187 07188 07625 08550 08552
08554 08555 08556 08557 08558
COLITIS,BIOCHEMICAL DIAGNOSIS OF ULCERATIVE
00562* 01494*
COLITIS,CIRCULATION IN ULCERATIVE
01492*
COLITIS,CLINICAL STUDIES OF ULCERATIVE
02297* 03123 04041* 04828
COLITIS,DISEASES ASSOCIATED WITH ULCERATIVE
00624 00627* 00629* 00638 01494* 02297* 02299 03118*
03121 03122 03127 04043* 04046 04821 07185
COLITIS,DRUG TREATMENT OF ULCERATIVE
00634 05832* 05846
COLITIS,GRANULOMATOUS
SEE CROHNS DISEASE OF COLON
COLITIS,IMMUNOLOGY IN ULCERATIVE
05741* 07098*
COLITIS,MEDICATIONS IN TREATMENT OF ULCERATIVE
04828 07188
COLITIS,METABOLIC CHANGES IN ULCERATIVE
01449* 04042* 05841 08548*
COLITIS,MICROORGANISMS IN ULCERATIVE
01491* 04823
COLITIS,ULCERATIVE
00445 00522 00975 00987 01452* 01453* 01484 01486
02006* 03122 03124 03126 03403 03952* 03955 03985
04023 04039 04047 04120 04252 04742* 04818* 05073
05089* 05393* 05429 05710* 05713 05715 05769 05832*
05833* 05834 07098* 07173 07189 07192 08547* 08599
08988
COLLAGEN
03589
COLLAGEN DISEASES
06054*
COLON
SEE ALSO LARGE INTESTINE
03084* 03969* 03972* 04197* 05092* 05159* 06742 07102*
07995* 08439* 08482
COLON RUPTURE
08471

COLON,CROHNS DISEASE OF
02279 03074* 04817* 05713 05752 07152
COLON,IRRITABLE
00293 00610 00963 00977 01070* 01482 02565 03705
04029 07107* 07115
COLOSTOMY
00595 00597 02271 02296 03998 04805 05753 07097*
08290 08431* 08543
COMA,HEPATIC
SEE ALSO LIVER COMA
04087*
COMA,LIVER
00295 00689* 00714 00722 00750 00752 00753 00775*
00808 00815 00818* 00819* 00822* 00834 00835 00838
00958 01150* 01171 01291 01540* 01541* 01547* 01575
01582 01588 01589 01603 01634 01638 01644 01654*
01670 02003* 02342* 02355 02356 02362 02363 02376
02378 02386 02432 02474* 02592 02885 03199 03212
03228 03258* 03537* 04097 04104 04114 04118 04318*
04429* 04607 04942 05867 05950 05958 05965 06037
06060 06070 06105 06213 07277 07279 07296 07299
07322 07372 07411 07637 08008* 08613 08635* 08645
08651 08679 08683 08703 08724 08733* 08735 08748
08765
COMMON BILE DUCT
SEE ALSO BILIARY TRACT
00210* 00444 00660 00750 00753 00756 00787 00844*
00848* 00849* 00852 00861 00864 00865 00867 00869
00870 00871 00881 01025* 01110* 01223 01232 01533*
01570 01585 01596 01676* 01679* 01685 01687 01688
01689 01690 01691 01692 01693 01694 01695 01698
01699 01702 01712 01717 01862* 01914 01938 02314
02497* 02498* 02499* 02503* 02504* 02505* 02507 02509
02510 02511 02512 02517 02521 02524 02526 02531
02532 02533 02534 02535 02536 02537 02538 02652*
02728 02784 02860 03028 03177 03215 03282* 03291
03292 03296 03297 03300 03302 03303 03304 03305
03307 03310 03665 03712 03713 03828 04058 04167*
04178 04179 04182 04185 04508* 04573 04688 04837
04888 04931 04991 04996 04997 05002 05005 05012
05013 05444 06128* 06133* 06135* 06142 06146 06148
06156 06158 06174 06181 06185 06186 06187 06188
06189 06192 06195 06197 06198 06211 06213 06215
06505* 06519 06749 06788 06981 07218 07230* 07471*
07483 07489 07491 07495 07502 07504 07507 07511
07512 07513 07904 08563* 08825* 08826* 08831* 08842
08845 08850 08853 08855 08857 08858 08864 08869
COMMON BILE DUCT PROSTHESIS 06219
00845*

COMPLICATIONS TREATMENT,GASTRECTOMY
08289
COMPUTERS IN DIAGNOSIS
05445
CONGENITAL ANOMALIES
00326 00327 00331 00343 00350 00412 00546 00550
00553 00560 00567* 00582 00619 00621 00626 00650
00713 00730 00758 00882 00924 01256 01261 01286
01295 01296 01322 01341 01358 01362 01365 01436
01456 01470 01475 01511 01544* 01545* 01560 01777
01778 01798 01811 01831 02017* 02043 02063* 02068
02069 02072 02073 02076 02079 02080 02136 02142
02145* 02155 02168 02181 02243 02250 02357 02359
02367 02374 02458* 02500* 02560 02561 02573 02612
02876 02877 02887 02916 02963* 02979 02989 02990
02994 03055 03057 03071* 03084* 03086 03140 03168*
03183 03196 03288* 03294 03298 03344 03346 03435
03484 03656 03703 03751 03760 03787 03825 03829
03837 03841 03847 03878 03881 03890 03984 03991
03994 04011 04021 04030 04032 04035 04055 04062
04238 04638 04640 04653 04676* 04677 04682 04685
04775 04808 04813 04837 04841 04900 04907 05005
05476 05478 05500 05565 05587 05607 05726 05736
05748 05761 05766 05781 05811 05811 05813 05814
05819 05874 05956 06009 06038 06042 06140 06146
06157 06194 06195 06198 06268 06313 06358 06763
06802 06805 06827 06842 06874 06888 06916 06945*
06949 06950 06971 06972 06974 07074 07097* 07117
07123 07130 07134 07154 07206 07295 07309 07477
07543 07587 07606 07640 07656 07971* 08079* 08081
08129 08131 08250* 08254* 08258 08272 08316 08319
08440* 08465 08466 08482 08492 08502 08567 08940
08946 08991 09007 06196

CONSTIPATION
04204* 06277 07107* 07697 07789 07811*

CONTRACEPTIVE DRUGS IN LIVER INJURIES
00772* 00774* 00777* 00778* 00784 01610 02430 03207
03222 04127 05277* 05281* 06034 06118 06407* 07386
08732* 06049*

CONTRAST MEDIA
06171 06706 06754 06758 06784 07505 07812*
COOLING TREATMENT OF BLEEDING
00409 01319* 02098* 04713* 05543 05757 08897* 08900
COPPER
01338 02436
COPPER ABSORPTION
01842* 02788 02830 03183 05992 07783*
COPPER EXCRETION
00707* 07899*
COPPER METABOLISM
04877* 06491
COPPER METABOLISM,LIVER
00688* 00707* 00777* 00997 01962 02368 02411 02697*
02788 02830 03183 04275* 04286 04439 04866* 05115*
06047 06281 07267 07304 07318 07319 07462 07899*
08621* 08637*

CORTICOSTEROIDS
00073* 00114* 00137* 00154 00170 00201* 00224* 00476*
00486 00487 00488 00509 00519* 00628* 00629* 00638
00668* 00757 00815 00903* 00993 01008* 01022* 01128*
01134* 01141* 01155 01168 01393* 01397* 01423* 01454*
01497* 01523 01525 01542* 01559 01562 01627* 01630*
01632 01634 01638 01645 01657 01658 01721* 01810
01883* 02206 02213 02378 02439 02441 02717 02899*
02915 03002* 03146* 03237* 03275 03565 04048 04083*
04152* 04163 04299 04473 04608 04795 04987 05244
05278* 05339 05468* 05592 05668* 05706 05759 05841
05900 05965 06038 06060 06105 06185 06377 06387
06473* 06529* 07116 07187 07258 07296 07339 07394*
07395* 07406 07408 07561 07569 07724* 07866* 08404*
08554 08695 08710 08755* 08802 06569*
CORTISONE
06658 07566
CRIGLER-NAJJAR SYNDROME
01940 07236* 04887

CROHNS DISEASE
00224* 00519* 00520* 00522 00523 00524 00525 00576
00585 00594 00612 00629* 00975 00987 00993 01423*
01424 01425 01453* 01464 01472 01476 01493* 01499
01745 01804 02228 02229 02230 02231 02232 02255*
02289 03035* 03036* 03037 03038 03042* 03070* 03103
03115 03403 03629 03951* 03953* 03954* 03956 03957
03958 03990 04047 04208* 04742* 04743* 04745 04746
04747 04809 04828 05089* 05393* 05481 05508 05640
05650 05715 05747 05825 06387 06994 07055* 07056*
07057 07058 07098* 07111 07173 08405 08426 08459
08512 08528 08547* 08984
CROHNS DISEASE OF COLON
02279 03074* 04817* 05713 05752 07152
CRYOSURGERY
00742 01488 03590 06381
CUSHINGS SYNDROME
01169 01514

CYST,CHOLEDOCHAL
07469*
CYSTADENOCARCINOMA
07210 08436*
CYSTADENOMA
01515 01609 03637 07210
CYSTIC FIBROSIS
SEE MUCOVISCIDOSIS
CYSTS,APPENDIX
02285
CYSTS,BILIARY TRACT
04179 07477
CYSTS,GALLBLADDER
02519 06140 07489
CYSTS,GASTROINTESTINAL
06287 07692 08182
CYSTS,LARGE INTESTINE
00596 01468 02285 04005 07164 08475
CYSTS,LIVER
00243 00244 00682* 00717 00718 00719 00720 00730
00743 00852 00904 00905 00906 00907 00909 00910
01248 01560 01573 01599 01607* 01609 02377 02385
03164* 03175 03180 03352 03664 03670 04569 04926
04931 04932 05068 05072 05327 05956 05960 05964
05968 05971 05977 06020 06307 07286 07320 07323
07338 08650 08699 08705 08716
CYSTS,MESENTERY
02145* 03352 07694

CYSTS,PANCREAS
00641* 00653 00654 00667* 00675 00904 00906 00907
00909 00910 01246 01506* 02155 02309 02313 02527
02776 02785 03139 03352 04064 04829* 04833 04845
04847 04858 05068 05847* 05861 05865 05871 05873
05888 05901 07211 07212 07219 08561* 08571 08579
08580 08585 08586 08593
CYSTS,RECTUM
08503
CYSTS,SMALL INTESTINE
00458 06981
CYSTS,STOMACH
05551
CYTOLOGICAL DIAGNOSIS
00241 00253 00305 06862*
CYTOLOGY
01855 05375 05459 05931 06249 06886 08173
CYTOLOGY,EXFOLIATIVE
00238* 00370* 00419 01007* 02786 05560 06710* 06862*
07769
CYTOLOGY,LIVER
07431*
CYTOLOGY,STOMACH
01095*

DECRETION,PANCREAS AMYLASE
05260*
DEFECATION
00342 00457 00568 00608 01214* 01477 01779 02257
02263 02266 02271 02540* 02582 03073* 03106 03119*
04204* 04246 04340 05031* 08932
DEGLUTITION
00313* 00325 01069* 01074* 01273* 02086 02880 03769
03773 03775 04336* 06323 06868* 08184
DEHYDRATION
02578

DIABETES MELLITUS
00034* 00048* 00141* 00313* 00387 00527* 00639* 00875
00892* 00899* 01060 01098 01122* 01131* 01229 01402
01627* 01632 01990 02097* 02127 02248 02334 02346*
02352* 02476* 02861 03137 03187 03192 03205 03308
03311 04054 04102 04106 04152* 04269* 04368* 04369
04404* 04748* 04903 04916 05221 05227* 05265 05300*
05319 05351 05520* 05561 05886 05931 06094* 06109
06132* 06172 06255 06326 06556 06615 06633 07200
07446 07457 07666 08078* 08251* 08565* 08663 08674

DIALYSIS
00668* 00902*
DIAPHRAGM
SEE ALSO DIAPHRAGM HERNIA
SEE ALSO HIATUS HERNIA
02095 02917 03842 04210 04235 05577 05583
DIAPHRAGM HERNIA
00254 00323 00326 00352 00936 01246 01281 01288
02068 02069 02072 02076 02863* 02874 02895 03435
03758 03760 03761 03768 03785 03847 05066 05562
05778 06196 06285 06286 06313 06331 07539 07971*
08110 08938 08967 08991 09007
DIAPHRAGM RUPTURE
00254 02895 04257 07539
DIARRHEA
00308* 00523 00526* 00527* 00528* 00531 00540 00552
00555 00557 00559 00568 00591 00622 00746 00805
00888* 00889* 00894* 00912 00929 00941 00942 00951
00963 00965 00973 00977 00987 01003 01070* 01361
01381 01404 01417 01426* 01427* 01429* 01430* 01432
01434 01452* 01455 01736* 01752 01755 01756 01760
01770 01773 01801 01848* 01858* 01865* 02146* 02193*
02233 02289 02548* 02567 02606 02607 02680* 02825
02956 02968 02985 03037 03048 03056 03120* 03228
03345 03368 03370 03423 03425 03427 03432 03601*
03801* 03814 03899 03920* 03924* 03956 03961* 03963
03964 03996 04019 04029 04031 04041* 04199* 04252
04290 04566 04674* 04744 04835 05037 05062 05077
05081 05264 05597* 05603* 05604* 05605* 05649 05693
05710* 05725 05728 05747 05750 05765 05777 05780
05844 05858 06226* 06229* 06234* 06255 06315 06326
06339 06347 06351 06365 06371 06389 06403* 06450
06673 06702 06762 06912 06979 07062* 07073 07075
07088 07107* 07115 07160 07525* 07547 07563 07577
07585 07588 07598 07609 07616 07661 07668 07685
07702 07781* 07811* 07855* 08251* 08293 08406 08413*
08414 08551 08572 08584 08949 08951 08955 08957
08976 08979 08989 09029
DIARRHEA IN CHILDREN
SEE ALSO CELIAC DISEASE
00465 00544 00550 00558 00924 00932 00935 00970
00971 01433 01435 01441 01743 01744 01757 02248
02545* 02546* 02547* 02560 02578 02579 02613 02617
02840 03054 03056 03317* 03349 05021* 05024* 05030*
05728 06355 06359 06361 07638 07658 07710 08927
08969 08971
DIARRHEA TREATMENT
02565

DIETARY DEFICIENCIES
00151 00153 00177* 00180* 00389 00544 00545 00759
00988 00990 01048* 01142* 01179* 01646* 01957 02108
02223 02560 02726 03408 03415 03442 03961* 04597*
05279* 05291* 05730 05732 06328 06584* 06818 07537*
07575 07662 07877* 08643* 08703
DIETARY DEFICIENCIES IN LIVER INJURIES
00117* 00124* 00125* 00126* 00701* 00767* 00825* 00828*
00829* 02473* 04502* 04502* 05279*
DIETARY DEFICIENCIES IN MALABSORPTION
00195
DIETARY FACTORS
00004* 00012* 00048* 00077* 00093 00094* 00100* 00122*
00123* 00124* 00139* 00177* 00180* 00184* 00186 00338
00451 00476* 00518 00531 00540 00547 00748 00759
00767* 00825* 00906 00914 00934 00938 00958 00960
00990 01022* 01033 01044* 01049* 01056 01080* 01097*
01122* 01127* 01138* 01144* 01148* 01180* 01185* 01307*
01372 01389* 01426* 01443 01502 01508 01646* 01700
01701 01711 01712 01714 01789 01809 01895* 01909*
01914 01935 01957 01994 01997 02118 02203 02204
02211 02237* 02395 02436 02475* 02476* 02560 02562
02576 02582 02611 02615 02648 02650 02709* 02720
02723 02724 02725 02733 02747 02748 02754 02755
02810 02890 02919 02923 02996 03015* 03055 03132*
03260* 03303 03312 03428 03447* 03481* 03493 03538*
03559 03560 03569 03570 03571 03573 03587 03592
03996 04109 04132 04133 04142 04159 04164 04337*
04406* 04416* 04468 04469 04510* 04597* 04760* 04761*
05162* 05170 05185 05211 05278* 05288* 05309 05338
05344 05370 05372 05374 05388 05516* 05529 05554
05558 05597* 05722* 05756 05849 05958 06032 06045
06108 06123 06239* 06256 06259 06319 06323 06324
06325 06328 06359 06410* 06438 06484 06525 06562
06563 06565* 06579* 06583* 06584* 06613 06625 06633
06636 06637 06638 06640 06641 06642 06660 06661
06668* 06674 06677 06680 06699 06803 07261 07427*
07455 07544 07579 07590 07596 07627 07658 07697
07736* 07755 07780* 07832 07833 07903* 07908 07926
08180 08225 08423 08443* 08680 08681 08709 08718
08728* 08757 08833* 08920 08941
DIETARY MALABSORPTION TREATMENT
00036 00446 00551 00557 01426* 01430* 01431 01745
03049 04199* 05718* 05726 08409*
DIETETIC THERAPY
00377 00446 00528* 00551 00737 00745 00792* 00893*
00932 01313* 01409 01412 01431 01438 01440 01441
01613 01646* 01674 01743 01744 01771 01784 02118
02154 02210 02238* 02246 02249 02250 02337 02364
02378 02386 02395 02567 02569 02570 02576 02577
02810 03049 03272 03280 03386 03758 03980 04228
04753 04822 05036 05373 05671 05710* 06046 06328
08265 08557 08643* 08867
DIGESTION
SEE ALSO BILE
SEE ALSO PANCREAS
SEE ALSO SMALL INTESTINE
00919 01057 01185* 01996 01998 02221 02304* 02589
02755 03383 03389 03657 04397 04398 04399 04528
05194* 07832
DIGESTION IN CHILDREN
00919 02573 05726 05730
DIGESTION,CARBOHYDRATE
00100* 00206* 00220* 01182* 01436 01440 01444 01839*
03405 03492 06674 07833
DIGESTION,LIPID
00169 00186 00938 01046* 01051 01737 01853 04328
04761* 05126 05722*
DIGESTION,PROTEIN
00033* 00185* 01188 01189 01275* 01508 01906* 02023*
02763* 03632 04372 04563 05254 05255 05367* 05598*
07828*
DIGESTIVE ACTION OF BILE
01055 01059
DILATATION,STOMACH
00362*

DISACCHARIDASE ACTIVITY
01440 05274* 05360*
DISACCHARIDASE DEFICIENCY
00536 00558 01183* 01745 02244 02560 04749* 05024*
05726
DISACCHARIDASES,SMALL INTESTINE
00286 00528* 00536 00538 01040* 01182* 01183* 01436
01745 01831 02238* 02243 02244 03453* 04566 04749*
04753 05360* 05735 06668* 06671 07065* 07067* 07964*
08409*
DISACCHARIDE ABSORPTION
03132*

DISEASES ASSOCIATED WITH BILIARY TRACT
02530 03304 03343 04319* 04984* 06154 07352 07487
DISEASES ASSOCIATED WITH CANCER
00647 00660 00729 00763 00847* 01228 01320* 01503*
01514 01725* 02249 02369 02607 03072* 03203 03840
04012 04059 04162 04237 06247 06378 06875 07501
07586
DISEASES ASSOCIATED WITH CHOLELITHIASIS
00678* 00746 00847* 00856 00862 00880 01355* 01392*
01678* 01679* 01703 01706 01707 01710 02302* 02504*
02516 02528 03156* 03296 04993 06139*
DISEASES ASSOCIATED WITH CIRRHOSIS
00312* 00699* 00704* 00707* 00714 00823* 00824* 00827*
00834 00837 00843 00933 00958 01291 01661 01663
01665 01668 01670 01671 02003* 02025* 02066* 02097*
02350* 02360 02471* 02473* 02474* 02478 02479 02480
02487 02491 03170* 03258* 03260* 03262* 03266* 03269
03270 03274 03276 04104 04154* 04155* 04159 04161
04162 04163 04165 04748* 04865* 04970 04976 04980
05115* 05240 05429 05926* 05958 06107 06109 06110
06118 06121 06124 07251* 07406 07430* 07446 07449
07452 07458 08798 08823
DISEASES ASSOCIATED WITH ENTEROCOLITIS
01469
DISEASES ASSOCIATED WITH ESOPHAGUS
02866* 05481 06835 08078* 08081 08090 08099
DISEASES ASSOCIATED WITH GALLBLADDER
02455* 06054* 06132* 07482 07496
DISEASES ASSOCIATED WITH GASTRECTOMY
01318* 01398* 05552 08134*
DISEASES ASSOCIATED WITH GASTRITIS
02898*
DISEASES ASSOCIATED WITH GASTROINTESTINAL TRACT
02594 03339 03814 04762* 05243 05266 05453 06274
06290 06787 06835 07072 07589 07707 07708 08027
08519 08906 08911 08996
DISEASES ASSOCIATED WITH HEPATITIS
00714 01562 01563 02097* 02437 02455* 03262* 03263*
04148 06074* 06075* 06913 07339 07395* 08631* 08753*
08762
DISEASES ASSOCIATED WITH HIATUS HERNIA
00317*
DISEASES ASSOCIATED WITH JAUNDICE
00690* 01571 02308 02380 03195 05016 06031 06121
06159 06223 06359 07296 07384 08653 08719
DISEASES ASSOCIATED WITH LARGE INTESTINE
03126 03201 05791 06242* 07162 08524
DISEASES ASSOCIATED WITH LIVER
02403 02493 02495 03126 03199 03202 03216 03254
04920 05853 05927 05984 06043 07243* 07312 08631*
08661
DISEASES ASSOCIATED WITH LIVER DISEASES
04149

DISEASES ASSOCIATED WITH MALABSORPTION
00544 00547 00549 00555 00556 00560 01379 01841*
02236* 02242 02595 03200 03959* 03967 04567 05036
05520* 07071 08419 04200*
DISEASES ASSOCIATED WITH PANCREAS
03137 05850 05864 08565*
DISEASES ASSOCIATED WITH PANCREATITIS
00641* 00662* 00665* 00667* 00671 01115 01378 01506*
01517* 01529 02310 02327 02328 03145* 03149* 03343
04070* 04071 04077 04078 04855 07217 07218 08596*
08601* 08605
DISEASES ASSOCIATED WITH PARASITIC DISEASES
00719 00852 00988 01607* 02586 03060* 03670 04927
05004 07135
DISEASES ASSOCIATED WITH PEPTIC ULCERS
00072* 00316* 00380 00506 01090* 01321* 01394* 01411
02191* 02511 02937 03029 03918* 03931 04154* 04726
05705 05860 05874 06898 07013* 08223 08375
DISEASES ASSOCIATED WITH PORTAL HYPERTENSION
00699* 00708* 01673 02066* 02482 03196 03738* 04160
05025* 05924* 06018 07029 08069* 08813
DISEASES ASSOCIATED WITH REGIONAL ENTERITIS
00629* 08247*
DISEASES ASSOCIATED WITH SALIVARY GLANDS
05032*

DISEASES ASSOCIATED WITH SMALL INTESTINE
03053 03201 03370 05602* 05714 06980 07093 07163
08309 05609
DISEASES ASSOCIATED WITH STOMACH
02127 02343* 02938 05241 06835 08154
DISEASES ASSOCIATED WITH ULCERATIVE COLITIS
00624 00627* 00629* 00638 01494* 02297* 02299 03118*
03121 03122 03127 04043* 04046 04821 07185
DISEASES ASSOCIATED WITH ULCERS
00358* 08379
DISEASES ASSOCIATED WITH VIRAL HEPATITIS
00746 00801 00802 00809 01225 01632 01633 02458*
03234* 03238* 03248 04123 04910 04950 05409 06076*
07403 07494 08768 06080

DISEASES IN CHILDREN,BILIARY
02500* 08843
DISEASES IN CHILDREN,GALLBLADDER
08840 08841
DISEASES IN CHILDREN,GASTROINTESTINAL
00918 01743 01744 02564 03379 05037 06240* 06253
07075 07094 08922 08971 09021
DISEASES IN CHILDREN,LIVER
05449 06015 06020 08702
DISEASES IN CHILDREN,PARASITIC
00973 01748 01791 01808 02608 03405 04260 05084
05646 07545 07550 07551 07555 07571 07647 08702
08927 08943 08968 08971 09024

DISORDERS,STOMACH SECRETION
00081* 00083* 00196* 00221* 00237* 00302 00316* 00319*
00364* 00365* 00393 00395 00402 00404 00472* 00486
00489 00497 00662* 00897* 00911 00953 01090* 01216*
01327 01334 01336 01421 01742 01883* 02015* 02084
02100* 02117 02189* 02201 02343* 02645 03009* 03023
03518* 03943 04341 04367 04656 05093* 05094* 05256
05257 05568 06543 06708* 06733 08226
DISTENSION
06321
DIURETIC AGENTS
01650* 01654* 01656 01660 01662 01663 01669 04882
04971 04975 06046 02382 02470* 05222

DIVERTICULA,DUODENUM
02970 03882 04836 05611 06940* 06988 06995 07509
08258 08260 08267 08268 08342 04695
DIVERTICULA,ESOPHAGUS
00304 00343 01285 02091 02881 02889 02893 02894
03646 03750 03764 03771 03791 04621 05467* 05506
05509 05510 06804 06830 06834 06845 06850 08089
DIVERTICULA,GALLBLADDER
07476
DIVERTICULA,GASTROINTESTINAL
05510 06845 07640
DIVERTICULA,LARGE INTESTINE
00293 00586 00610 01471 01708 02250* 02261 03081*
03082* 03090 03322* 03364 03974* 03989 04005 04021
04757* 04776 04804 04810 05713 05745* 05756 05782
06340 07103* 07134 07158 08456 08467 08473 08519
08533 05740*
DIVERTICULA,RECTUM
00586 08439*
DIVERTICULA,SMALL INTESTINE
00430* 00453 00459 00529* 01360 01369 01382 02157
02172 02173 02970 02971 02974 02978 02991 03099
03322* 03874 03877 03882 04677 04684 04690 04699
06961 06974 06995 07153 08252* 08260 08281 08283
DIVERTICULA,STOMACH
02121 03656 03943 05583 06905 06911 08017 08172
DIVERTICULITIS
00880 01287 01479 02514 02596 03638 03974* 03974*
04208* 05393* 06940* 07641 08533 08999 06266
DIVERTICULITIS DIAGNOSIS
00293 00453 02262 04757* 06266 07138
DIVERTICULITIS TREATMENT
00430* 00594 00600 01003 02172 02262 02970 03979*
04757* 08435* 08444*
DIVERTICULITIS,GASTROINTESTINAL
03322*
DIVERTICULITIS,LARGE INTESTINE
00561* 00580 00594 00600 00610 01461 01471 01486
02261 02262 03081* 03083* 03974* 03979* 04208* 04804
05740* 05756 05777 05788 07112 07173 07648 08435*
08439* 08444*
DIVERTICULITIS,SMALL INTESTINE
02157 04690 05732
DIVERTICULITIS,STOMACH
08172

DIVERTICULUM,MECKELS
00250 00459 00939 01258 01360 01362 01382 01479
01811 01813 02158 02164 02172 02173 02181 02798
02969 02971 02974 02978 02981 02989 02990 02991
03872 03874 03877 03900 04677 05610 05614 05648
05781 06139* 06278 06951 06978 06993 07133 08249*
08264 08279 08298 08302 08322
DIVERTICULUM,SMALL INTESTINE
00429*
DIVERTICULUM,ZENKERS
03747
DRUG ABSORPTION
00032* 00040 00042 00043 01039* 01741 02382 03313*
03400 03494 04324* 04329 04331 04332 05178 06501

DRUG EFFECTS ON ABSORPTION
00035* 01849*
DRUG EFFECTS ON BILE SECRETION
01129*
DRUG EFFECTS ON BILIARY TRACT
00024* 01113* 01239 01862* 02506* 02536 04276* 04432*
04589 05297* 06626 07615 07945 08682
DRUG EFFECTS ON GALLBLADDER
05203 07484
DRUG EFFECTS ON GASTROINTESTINAL TRACT
00061* 00179* 00181* 00266 00280 00366* 00447 00461
00884* 00891* 00945 00955 00980 01003 01075* 01337
01482 01730* 01731* 01740 01741 01773 01786 01806
01807 01984 02020* 02235* 02543* 02604 02661 02664
02846 02969 03348 03363 03365 03383 03385 03398
03400 03432 03618* 03794* 03907 03929 03963 03997
04227 04246 04254 04284 04344 04370 04491* 04648
04827 04839 05048 05069 05087 05180 05370 05569
05686 06231* 06263 06292 06332 06342 06365 06383
06392 06469* 06501 06512 06513 06980 07537* 07549
07561 07566 07569 07576 07646 07750 07789 07806
08892* 08904 08964 08970 09022 09025 08916
DRUG EFFECTS ON LARGE INTESTINE
06227* 06300 06691*
DRUG EFFECTS ON LIVER
00113* 00116* 00119* 00128* 00131* 00136* 00170 00766*
00780 00781 00784 00787 00835 00843 01127* 01133*
01134* 01140* 01143* 01147* 01148* 01149* 01151 01155
01170 01542* 01577 01578 01609 01614 01627* 01651*
01662 01926* 01930* 01940 01944 01951 01970 01971
01972 01975 01976 01985 02346* 02368 02370 02389
02415* 02420* 02429 02439 02451 02502* 02699* 02700*
02701* 02706* 03157* 03182 03211 03448* 03452* 03532*
03534* 03539* 03540* 03543* 03546* 03549* 03551* 03560
03561 03564 03566 03573 03574 03581 03583 03591
03600* 04080* 04132 04148 04271* 04408* 04409* 04424*
04441 04448 04457 04460 04462 04464 04470 04481
04494* 04497* 04519 04537 04893 04902 04941 04981*
05101* 05110* 05113* 05132 05276* 05279* 05281* 05283*
05287* 05302 05303 05315 05326 05334 05354 05381*
05930 05982 05998 06027 06043 06049* 06055* 06056*
06058 06064 06065 06075* 06143 06185 06404* 06433
06473* 06566* 06578* 06584* 06615 06617 06620 07232*
07233* 07258 07285 07297 07353 07370* 07374 07376
07378 07379 07380 07381 07385 07386 07388 07450
07764 07895* 07896* 07897* 07912 07917 07921 07922
07929 07930 07932 07937 07950 07957 08682 08720
08734* 08737 08738 08739 08741 08743 08746 08818
08824 08825*
DRUG EFFECTS ON METABOLISM
00188
DRUG EFFECTS ON MOTILITY
00050* 00052* 00054* 00055* 00056* 00060 00276 00280
00512 00760 01072* 01210* 01211* 01269 01482 01577
01820* 01862* 01868* 01869* 02205 02506* 02652* 02653*
02659 02762* 02865* 04246 04324* 04464 04648 05074
05203 06332 07557
DRUG EFFECTS ON PANCREAS
00102* 00642* 01113* 01143* 01907* 01911* 01913* 02304*
05259* 05270 05900 06431 07725* 07866* 07868*
DRUG EFFECTS ON SMALL INTESTINE
00058 00276 00433* 01008* 01022* 01049* 01068* 01350*
01423* 01822* 01849* 01864* 01913* 02228 02554* 02653*
04266* 04324* 04334 04335 04487* 04521 04538 05098*
05154* 05156* 05193* 05365* 06300 06437 06494 06544
06691* 06975 06977 07763 07803 07821 07985 08286
DRUG EFFECTS ON STOMACH
00054* 00084* 00394 01105 01106 01255 01306* 01820*
01821* 01868* 01869* 01870 01900 02106* 02113 02670*
02688 02902* 03034 04356* 04380 04716* 05135 05161*
05177 05251 05257 05513* 05702 06227* 06441 06449
06540 06560 06891 06897 06910 06918 06922 06975

DRUG EFFECTS ON STOMACH
CONTINUED
07024 07041 07724* 07818 08328*
DRUG EFFECTS ON STOMACH SECRETION
00255 01088* 01091* 01092* 01093* 01094* 01306* 01401
01405 01883* 01888* 01892* 01903 02051 02117 02542*
02604 02605 02669* 03518* 03519 03520 03832 03934
03935 03936 03939 04324* 04341 04366* 04369 04379
04382 04383 04550* 05161* 05199 05229* 05237* 05238*
05239 05244 05252 05662* 06468* 06509* 06529* 06530*
06536* 06537* 06545 06708* 07047 07829* 07835* 07839*
07840* 07843* 07846* 07847* 07850* 07852* 07959* 08135*
08396 06533*
DRUG INDUCED LIVER INJURIES
06056* 06401*
DRUG METABOLISM
00183* 00985 01891* 07871
DRUG METABOLISM,LIVER
00114* 00131* 00134* 00148 00149 00150 00770* 00780
00791 01127* 01148* 01940 01941 01960 01961 01970
01972 01975 01976 02037 02382 02415* 02483 03484*
03549* 03564 03567 03583 04271* 04403* 04409* 04424*
04426* 05315 07906 07949
DRUG TREATMENT OF BILIARY TRACT
02501* 02526 02536 02652* 03363 07488 07518 07522*
08626*
DRUG TREATMENT OF ESOPHAGUS
00351
DRUG TREATMENT OF GALLBLADDER
07501

DRUG TREATMENT OF GASTROINTESTINAL TRACT
00028* 00359* 00402 00477* 00487 00673 00888* 00915
00926 00930 00950 00951 00959 00963 00964 00965
00970 00977 01330 01720* 01737 01743 01744 01755
01765 01773 01787 01791 01800 01801 01802 01976
02253* 02264 02548* 02558 02567 02577 02580 02581
02589 02606 02968 02999* 03000* 03001* 03048 03313*
03321* 03323* 03330 03345 03356 03357 03359 03360
03361 03363 03365 03366 03371 03374 03375 03394
03407 03422 03785 03822 03832 03997 04049 04214
04215 04225 04227 04247 04255 04258 04523 04608
04634 04648 04820 05049 05053 05069 05070 05073
05074 05077 05078 05079 05081 05491 05752 05842
06298 06299 06310 06360 06365 06366 06382 06811
07024 07186 07530* 07573 07597 07604 07605 07615
07632 07635 07749 08225 08384 08422 08454 08512
08556 08557 08558 08902 08907 08914 08916 08928
08957 08973 08978 09000 09001 09022 09028 05467*
DRUG TREATMENT OF LARGE INTESTINE
00627* 03062* 05835 07152 07160
DRUG TREATMENT OF LIVER
00692* 00724 00746 00760 00766* 00799 00819* 00830
00832 00840 01554* 01560 01601 01622 01625* 01630*
01637 01645 01657 01971 02052 02355 02363 02364
02396 02433 02496 03182 03199 03237* 03459* 04147
04148 04441 04886 04893 04902 04923 04928 05952
06120 06185 06228* 06575* 07296 07298 07299 07360
07366* 08416 08626* 08688 08723
DRUG TREATMENT OF PANCREAS
00642* 01522 01523 01524 02320* 02329* 02668 04051*
04072 04390* 05852 05872 05894 08595* 08616 08617
DRUG TREATMENT OF PEPTIC ULCERS
03927* 08384 08385 08391
DRUG TREATMENT OF RECTUM
03980
DRUG TREATMENT OF STOMACH
01348 03015* 07558
DRUG TREATMENT OF ULCERATIVE COLITIS
00634 05832* 05846
DRUG TREATMENT OF ULCERS
00471* 00473* 00477* 00487 00510 00512 00518 01393*
01397* 01401 01409 01412 01418 02205 02678* 02899*
02998* 02999* 03000* 03001* 03003* 03025 03917* 03934
03935 03936 03940 03941 04359* 04729 05670 05707
06537* 07001* 07035 07048 08337* 08351 08360 03939

DRUG-INDUCED LIVER INJURIES
00770* 00780 00781 00790 01534* 01578 01609 01614
01616 01623 02419* 02420* 02422 02444 02494 02699*
03448* 03467* 03484* 04270* 04271* 04424* 04928 04935
05380* 06053* 06566* 06606 07897* 07923 05969 02415*
DRUG-INDUCED PANCREATITIS
04390* 08615
DRUG-INDUCED ULCERS
00377 00432* 00435* 00504 00509 01306* 01307* 01397*
01627* 01729* 01810 02213 02899* 03034 03456* 03917*
03931 04359* 04675* 05386 05689 05706 06053* 06922
07041 07566 07724* 08335*

DRUGS IN LIVER INJURIES,CONTRACEPTIVE
00772* 00774* 00777* 00778* 00784 01610 02430 03207
03222 04127 05277* 05281* 06034 06118 06407* 07386
08732*

DUBIN-JOHNSON SYNDROME
00565* 01572 03194 03204 03706 05130 06048 08620*
08628* 08670 08672
DUCTS,BILE
05456
DUCTS,PANCREAS
00654 00661* 00667* 01528 01718 01914 02507 03143*
04385* 04836 05883* 07761 08563*
DUMPING SYNDROME
05589 08101 08203 08212 08347 08390

DUMPING SYNDROME,GASTRECTOMY-INDUCED
00308* 00356* 00360* 00368* 00386 00428 00431* 00440*
00468* 00474* 00480* 00898* 01314* 01318* 01328 01338
01375 01399* 02102* 02104* 02138 02680* 02762* 02908*
03797* 03844 03924* 04199* 04543* 04673* 05545 05548
05588 05656 05677 06869* 06885 07812* 08134* 08138*
08255* 07030

DUODENITIS
00448 02144* 02789
DUODENUM
SEE ALSO SMALL INTESTINE
00065* 00101* 00276 00427 00444 00495 00524 00650
00660 00856 01031 01322 01358 01377 01425 01510
01511 01859* 01880* 02764* 02815 02908* 02973 03530*
03599* 03672 03831 03854 04197* 04484* 04486* 04488*
04569 04684 04754 04859 04991 05160* 05191* 05587
05662* 05883* 06130* 06217 06322 06456 06681* 06900
06972 06975 07761 07780* 07959* 08230 08266 08280
08318
DUODENUM ABSORPTION
02831
DUODENUM ANOMALIES
01260 01365 02917 04638 08267 08292 08319
DUODENUM BIOCHEMISTRY
06778
DUODENUM BIOPSY
03046 05138
DUODENUM CANCER
01364 01380 02314 02972 02982 04058 04691 04703
05641 08568
DUODENUM DEVELOPMENT
01031 02155 06945*
DUODENUM DIAGNOSIS
00511 01380 02332 02516 02773 02961* 02966 02986
02987 03028 03307 03484 03618* 03627 03710 03723
04738 05625 05641 05643 06370 06956 07039 07200
08268 08312
DUODENUM DISEASES
SEE ALSO ULCERS
00455 02176 02961* 03145* 03604* 03870* 03886 03956
04190* 04681 04687 05681 06964 08299

DUODENUM DIVERTICULA
02970 03882 04836 05611 06940* 06988 06995 07509
08258 08260 08267 08268 08342 04695
DUODENUM FISTULAS
00344 00463 01707 01919 02169 02177 02208 02528
02782 04696 04993 05620 05647 06923 06959 08289
08307 08317 08382 08962
DUODENUM HISTOLOGY
00438* 01814* 01815* 02982 02987 04266* 05138 05643
06399* 07736* 08255*
DUODENUM IN CHILDREN
02966 03627 08313
DUODENUM INJURIES
01359 01376 03888 03889
DUODENUM MORPHOLOGY
00014* 00438* 01024* 01025* 02789 03886 05134 06462
DUODENUM MOTILITY
01210* 02655* 02658 03292 03618* 04345 07815* 08284
DUODENUM MUCOSA
00269 00359* 00438* 00440* 00448 00902* 01008* 01024*
01178* 01814* 02147* 02159 02178 02605 02789 03046
03598 03627 03723 03891 03912 03956 04486* 04724
05134 05138 06189 07842* 08773
DUODENUM NEOPLASMS
00467 01384
DUODENUM NEOPLASMS,BENIGN
02987 05643 06958 06967 08296
DUODENUM NEOPLASMS,MALIGNANT
05641 06967 08295 08305 08320
DUODENUM OBSTRUCTION
01363 02178 02528 03145* 05608 05625 05874 08272
08316
DUODENUM PATHOLOGY
01380 01724* 06462 08296
DUODENUM PERFORATION
05592 05659 05705 08304
DUODENUM POLYPS
02987
DUODENUM RADIOLOGY
00269 00280 00514 01198* 01378 01380 02026* 02332
02516 02773 02982 02986 03484 03618* 03693 03710
04339* 04687 04691 04703 05444 05641 06370 06736
06934 06956 07039 08244* 08268
DUODENUM RUPTURE
01347
DUODENUM SECRETION
00107 01033 01863* 03130* 03465* 04375 05292* 06544
06551* 07200 07864* 07969
DUODENUM SURGERY
00463 00467 00503 01339 01352* 01364 01697 01699
02138 02159 02169 02176 02183 02201 02208 02220
02222 02224 02307 02339 02507 02527 02693 02929
02966 02982 02987 03026 03027 03302 03315* 03402
03797* 03882 03895 03897 03909 03915* 03916* 03921*
03923* 03924* 03928* 04182 04374 04649 04650 04676*
04681 04688 04691 04695 04704 04730 04739 04848
05012 05031* 05444 05456 05554 05589 05622 05647
05656 05658 05659 05667* 05675 05676 05677 05680
05696 05703 05874 06903 06923 06945* 06947 06956
06959 06988 07003* 07052 08151 08206 08258 08272
08284 08296 08304 08307 08320 08333* 08345 08370
08387 08563* 08568 08576 08606 08684 08853 08881
DUODENUM TRAUMA
01352* 01376 04704 05622 05688

DUODENUM ULCER TREATMENT
03923*
DUODENUM ULCERS
00107 00250 00316* 00344 00396 00404 00438* 00469*
00475* 00477* 00479* 00480* 00481* 00482* 00490 00499
00501 00503 00505 00508 00509 00510 00511 00514
00992 01069* 01097* 01202* 01249 01387* 01388* 01388*
01394* 01395* 01396* 01399* 01404 01410 01412 01414
01416 01418 01420 01421 01526 01811 01882* 01899
02026* 02031* 02047 02090 02109 02189* 02190* 02192*
02193* 02195* 02198* 02199* 02200* 02201 02202 02214
02219 02220 02221 02222 02224 02225 02511 02599
02780 02789 02925 03005* 03006* 03007* 03011* 03012*
03014* 03019 03021 03023 03026 03027 03028 03031
03032 03033 03269 03284* 03351 03616* 03819 03834
03856 03882 03915* 03916* 03921* 03922* 03924* 03928*
03929 03930 03933 03934 03935 03938 03944 03945
03946 03947 03949 04084* 04362* 04376 04384 04556*
04647 04650 04712* 04713* 04714* 04715* 04716* 04719
04720 04721 04722 04727 04729 04730 04731 04732
04734 04736 04737 04738 04739 04852* 05063 05164*
05199 05227* 05228* 05237* 05242 05416 05418 05419
05475 05554 05555 05564 05583 05664* 05671 05672
05675 05676 05677 05678 05682 05683 05685 05686
05689 05693 05694 05696 05701 05702 05703 05705
05707 05862 05870 05874 06061 06235* 06274 06311
06733 06737 06739 06822 06923 06931 06937 06960
06996* 06998* 07003* 07005* 07013* 07014* 07017 07019
07022 07025 07031 07037 07039 07040 07042 07043
07047 07049 07050 07052 07053 07220 07482 07849*
08168 08190 08208 08331* 08332* 08333* 08335* 08336*
08339 08341 08342 08344 08345 08349 08354 08355
08356 08358 08359 08360 08362 08363 08365 08366
08370 08372 08374 08380 08387 08391 08396 08397
08398 08399 08400 08446* 08667 08684 09022
05467* 05660* 05667* 05708 06430 07000* 07009* 07010*
07012* 07018 08337* 08338* 05662* 07008* 07011* 07051
08361
DUODENUM ULTRASTRUCTURE
01024* 05134
DUODENUM,FOREIGN BODIES IN
05031*
DUODUNUM SURGERY
03436
DYE STUDY TECHNIQUES
SEE MARKER STUDIES
DYSENTARY
07556
DYSENTERY
SEE ALSO AMEBIASIS
SEE ALSO SHIGELLOSIS
SEE ALSO TYPHOID FEVER
00889* 00929 00988 01455 01734* 01778 01783 01784
03060* 03220* 04014 04223 04224 05038 05916* 06445
06455 06776 06777 07612 07670 07672 07673 07675
07676 07678 07680 07690 07701 07704 07706 08503
08944 08982 09002 09009 09013 09019 09021 09023

DYSENTERY DIAGNOSIS
03404 04564
DYSENTERY EPIDEMIOLOGY
00999 01761
DYSENTERY ETIOLOGY
00999
DYSENTERY IMMUNOLOGY
01491* 04564
DYSENTERY IN CHILDREN
03349 05021* 05067 06385 07563
DYSENTERY PATHOLOGY
01728*
DYSENTERY TREATMENT
00964 00965 01761 02548* 03345 03349 03374 04194*
04214 04523 05021* 08976
DYSPEPSIA
00540 00980 00994 01232 01404 01743 02216 02343*
02683* 02840 02961* 03383 03832 04345 04730 05049
05082 05398* 06214 06345 07047 07638 07684 07709
08225 09018
DYSPHAGIA
01074* 01299 02061* 03737* 03769 04616 05484 05485
06789* 06853 08068* 08089 08105
DYSPHAGIA,ESOPHAGUS
00049* 00230* 00296 00310* 00313* 00320 00323 00332
00334 00341 01198* 01273* 01277* 01280* 01292 01300
01333 02067* 02070 02212 02865* 02880 02884 02891
02894 02897 03742 03749 03754 03777 03778 03788
04046 04336* 04599* 04618 05492 05495 05715 06511
06806 06836 08073* 08075* 08077* 08082 08084 08086
08087 08095 08106
DYSTROPHY
01900

ECHOGRAPHY
01238 02029*
EDEMA
00521 00551 00603 00675 00820* 00955 00979 00987
01232 01531 01753 02125 02212 03046 04252 05813
05816 06045 06884 07381 07496 08414 08594* 08892*
08981
ELECTROLYTE ABSORPTION
00029* 00030* 00039 00068* 00591 00658 01045* 01052
01061 01063 01065 01186 01437 01865* 02255* 02640*
02644 02646 02647 02667 03202 03362 03368 03423
04518 05145 05580 06493 07710 07781* 07795 08548*
ELECTROLYTE EXCRETION
01660 07172 07570 07788 08363 08592 06291

ELECTROLYTE EXCRETION,KIDNEY
07791
ELECTROLYTE METABOLISM
00068* 00097* 00476* 00674 00695* 00955 01126* 01141*
01186 01326 01367 01656 01776 01840* 02130 02154
02247 02310 02328 02388 02470* 02578 02592 02594
02686 02796 03148* 03362 03377 03502 03869* 04838
04971 05159* 05791 05841 06494 06542 06626 06811
06979 07172 07434 07570 08393 08622* 08686
ELECTROLYTE METABOLISM IN CIRRHOSIS
00818* 00832 01654* 01662 01663 01669 04980 07438
07442
ELECTROLYTE METABOLISM IN GASTROINTESTINAL TRACT
04349* 05372
ELECTROLYTE METABOLISM IN PANCREATITIS
07195*
ELECTROLYTE METABOLISM,LIVER
01931 02425 03869* 04466 04470 06609
ELECTROLYTE SECRETION
00640* 05719* 08951
ELECTROLYTE SECRETION,KIDNEY
00832 01613 01669 06987
ELECTROLYTE SECRETION,PANCREAS
00099* 01907* 05273
ELECTROLYTE SECRETION,STOMACH
00067* 00068* 00069* 00070* 00082* 00091 00658 01089*
01088* 01096* 01099 01868* 01883* 01896* 02669* 02672*
02686 05398* 07847* 07854* 08951
ELECTROLYTES
00096* 01165 01189 01603 01811 01874 01912* 02912*
04493 04525 05230* 05384 07293 07790 07864* 07917
08321
ELECTROLYTES,SERUM
00433* 00603 00658 00832 01547* 04509* 04882 05372
06355 07535* 07614 08622*
ELECTROMYOGRAPHY
05186* 06507*
ELECTRON MICROSCOPY
02625* 03168* 05125 06115 06249 06430 06462 07132
07528* 07725* 07728* 08628* 08663 08756*
ELECTROPHORESIS
00138* 00264 00805 01026* 01114 01116 01558 01644
01762 01825 01874 01932 02004* 02045 02392 02624*
03054 03055 03266* 03622 04440 05416 06004 06023
06535* 06548 06605 07253* 07848*
ELECTROPHYSIOLOGY
00045* 00047* 00090 00416 00439* 00961 01024* 01043*
01067* 01073* 01078* 01141* 01238 01319* 01547* 01859*
01866* 01872 01878* 01898* 01912* 02035* 02104* 02688
03734* 03856 04006 04327 04343 04345 04346 04364*
04418* 05019 05051 05186* 05187* 05189* 05190* 05191*
05193* 05194* 05201 05202 05230* 05662* 06181 06226*
06502* 06504* 06507* 06544 06623 06681* 06883 07035
07780* 07811* 07823 07826 07861 07997*
ELEMENTS AND MINERAL METABOLISM,TRACE
08414

EMBRYOLOGY
00003* 01010* 01015* 01817* 03470 04441 04685 04775
06268 06564
EMESIS
SEE ALSO VOMITING
07558 08249*
ENCEPHALITIS
06359
ENCEPHALOPATHY,HEPATIC
00714 00822* 00835 00958 01540* 01547* 01589 01590
01603 01654* 01670 02003* 02342* 02355 02362 02592
04104 04607 05921* 06029 06096* 08733*
ENDOMETRIOSIS
01382 02257 02596 03105 03369
ENDOSCOPY
06792*
ENDOSCOPY IN BLEEDING DIAGNOSIS
00347 01260 01782 02002* 03328* 03652 03717 03721
04230 05025*
ENDOSCOPY IN CANCER DIAGNOSIS
01285 01333 01490 02768* 03647 03799* 05423 05560
ENDOSCOPY,ABDOMEN
00257 02781 05410
ENDOSCOPY,ANESTHESIA IN
01269
ENDOSCOPY,BILIARY TRACT
01223 04122 05441
ENDOSCOPY,ESOPHAGUS
00230* 00251 00296 00311* 00312* 00316* 00322 00332
00340 00343 00347 01204* 01270 01272* 01285 01303
02002* 02071 02084 03636 03646 03725 03730* 03735*
03747 03752 03785 03786 04542* 04590 04621 05434
05504 05510 05924* 06839 08005* 08109
ENDOSCOPY,GASTROINTESTINAL
01341 03372 03636 03651 03652 03744 05510 06367
07640
ENDOSCOPY,LARGE INTESTINE
00225* 00579 00591 01070* 01234 01265 03645 03658
04018 04048 04306 06745
ENDOSCOPY,LIVER
04162
ENDOSCOPY,PERITONEAL
01196* 08026
ENDOSCOPY,RECTUM
00203* 00225* 00299 00820* 01234 03647 03699 04007
04014 04031
ENDOSCOPY,SMALL INTESTINE
02026* 02789 05048 06737 06883
ENDOSCOPY,STOMACH
00217* 00227* 00242 00251 00287 00305 00354* 00405
00421 00473* 01193* 01194* 01204* 01269 01270 01305*
01334 01870 02002* 02026* 02044 02681* 02768* 02789
02792 02913* 03499 03626 03640 03644 03673 03678
03717 03721 03725 03799* 03812 03932 04230 04542*
04544* 04590 05048 05423 05440 05450 05452 05575
05576 05583 05586 06320 06743 06756 06775 06873
06883 07001* 08003* 08021 08179 08207
ENTERCOLITIS NECROTICANS
01454*
ENTERITIS
SEE ALSO COLITIS
SEE ALSO ENTEROCOLITIS
SEE ALSO GASTROENTERITIS
00559 00976 01738 01754 02161 02174 04515 04558*
05747 06240* 06446 07524* 07562 07664 07667 07671
07674 07677 07681 07686 07687 07688 07689 07690
07759 08406
ENTERITIS DIAGNOSIS,REGIONAL
00521 03951* 03952*
ENTERITIS IN CHILDREN
01803 07077
ENTERITIS PATHOLOGY
02543* 05710* 08479
ENTERITIS,DISEASES ASSOCIATED WITH REGIONAL
00629* 08247*
ENTERITIS,REGIONAL
00224* 00449 00519* 00520* 00522 00523 00524 00557
00576 00585 00947 00975 00987 01382 01423* 01424
01425 01464 01493* 01804 02006* 02148* 02174 02228
02232 02810 03035* 03036* 03037 03038 03074* 03080*
03103 03115 03871 03951* 03952* 03953* 03954* 03955

ENTERITIS,REGIONAL
CONTINUED
03956 03958 03990 04044* 04047 04208* 04742* 04743*
04744 04745 04746 04747 04782 04809 04828 05089*
05393* 05710* 05711 05712 05713 05714 05715 05716
05717 05825 05836 07055* 07056* 07057 07058 07059
07060 07098* 07184* 08404* 08407 08408 08426 08459
08547*
ENTEROCHROMAFFIN CELLS
06412*
ENTEROCOLITIS
SEE ALSO COLITIS
SEE ALSO GASTROENTERITIS
00445 00522 00525 00580 00585 00603 00625 00629*
01455 01464 03042* 03381 03403 04023 04031 04295
04782 04792 05157* 05632 05668* 05816 07156 07524*
07669 08055 08512 08518 09020
ENTEROCOLITIS DIAGNOSIS
00224* 00523 00562* 00576 01476 02587 02840 04558*
05050 05747 06258 09019
ENTEROCOLITIS EPIDEMIOLOGY
01004
ENTEROCOLITIS ETIOLOGY
00371* 00573 00824* 00927 01467 01472 01727* 01738
02231 02259 02267 02543* 02587 02742* 03657 03711
05743* 06258 06300 08890*
ENTEROCOLITIS IN CHILDREN
00924 01727* 02267 08433*
ENTEROCOLITIS NECROTICANS
00571 00573 01423* 01454* 01727* 02543* 05747 05839
07162 08433* 08890*
ENTEROCOLITIS PATHOLOGY
00371* 00441* 00571 00968 01453* 01729* 01738 02259
02267 02587 03060* 03116* 05050 05650 05743* 05750
05825 08890* 08891*
ENTEROCOLITIS TREATMENT
00441* 00523 00571 00573 00576 01469 01727* 01771
01801 02230 02259 02267 02294 02543* 02580 04228
04795 05743* 06360
ENTEROCOLITIS,DISEASES ASSOCIATED WITH
01469
ENTEROCOLITIS,PSEUDOMEMBRANOUS
02259 02267 05747
ENTEROCOLITIS,STAPHYLOCOCCAL
05081 07781*

ENTEROKINASE
05208*
ENTEROPATHY,HEMORRHAGIC
00456 08245*

ENTEROPATHY,PROTEIN-LOSING
00002* 00197* 00264 00449 00521 00533 00551 00553
00888* 00987 01427* 01432 01435 02006* 02545* 02546*
02810 03042* 03055 03267* 03386 03433 03629 04252
04512* 05429 05721* 05734 06403* 06490 07075 07429*
08411* 08414 08428 07068*
ENTEROSTOMY
02984
ENVIRONMENT FACTORS
05563
ENYZMES,LIVER
06629
ENZYME SECRETION,PANCREAS
00645* 01581 01908* 02472* 05266 06074* 05272 05273 08363 08607
ENZYME TREATMENT OF GASTROINTESTINAL DISEASES
02611 05319
ENZYME TREATMENT OF GASTROINTESTINAL TRACT
00390 00898* 02117 02304* 02337 02472* 02914 04838
04839 06259 02334

ENZYMES
SEE ALSO AMYLASE
SEE ALSO PANCREAS SECRETION
SEE ALSO PHOSPHATASES
SEE ALSO STOMACH SECRETION
00188 01027 02790 04742* 05598* 06289
ENZYMES IN CHILDREN,LIVER
01639

ENZYMES,BILIARY TRACT
08623*
ENZYMES,GASTROINTESTINAL
00187 01027 01222 02632 03942 05097* 05142 05729
06527
ENZYMES,LARGE INTESTINE
01017* 01181* 02254* 05097* 06667* 06673 06678
ENZYMES,LIVER
00012* 00062* 00111* 00112* 00113* 00114* 00116* 00117*
00120* 00128* 00131* 00132* 00136* 00139* 00140* 00141*
00143 00149 00150 00152 00154 00155 00156 00160
00161 00164 00165 00167 00168 00170 00172 00174
00175 00176 00234* 00545 00688* 00693* 00694* 00749
00759 00764 00768* 00805 01014* 01017* 01023* 01026*
01030 01119* 01123* 01129* 01127* 01128* 01130* 01131*
01132* 01133* 01134* 01138* 01139* 01140* 01142* 01145*
01148* 01151 01152 01154 01155 01156 01157 01159
01161 01162 01163 01165 01170 01171 01173 01205*
01537* 01543* 01594 01635 01655* 01817* 01923* 01924*
01927* 01930* 01932 01933 01935 01937 01940 01941
01942 01943 01944 01945 01946 01947 01948 01949
01950 01951 01952 01953 01955 01958 01960 01962
01965 01969 01970 01973 01978 01980 02037 02322*
02377 02424 02427 02486 02492 02618* 02635 02639
02641* 02695* 02696* 02698* 02701* 02705* 02706* 02708*
02709* 02710* 02711 02713 02714 02715 02717 02718
02719 02722 02732 02738* 02765* 02771 02829 03166*
03169* 03182 03209 03223 03227 03246 03447* 03471
03473 03475 03484* 03534* 03535* 03538* 03539* 03540*
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03551* 03555* 03563 03565 03567 03572 03581 03582
03586 03587 03588 03592 03621 03650 03868* 04091*
04148 04268* 04271* 04280* 04291 04304 04392 04404*
04405* 04413* 04417* 04420* 04423* 04424* 04431* 04435
04436 04437 04440 04445 04447 04448 04449 04450
04454 04455 04457 04462 04465 04467 04473 04477
04883 04949 05106* 05107* 05110* 05133 05216 05217
05218 05220 05275* 05276* 05284* 05287* 05288* 05294*
05295* 05296* 05298* 05299* 05300* 05306 05309 05310
05313 05316 05317 05318 05332 05333 05334 05336
05337 05340 05342 05351 05912* 05920* 05997 05998
06006 06021 06024 06049* 06409* 06410* 06424 06432
06484 06486 06565* 06567* 06569* 06572* 06579* 06584*
06587* 06588* 06596* 06597* 06604 06605 06610 06613
06616 06617 06618 06620 06621 06622 06624 06625
06627 06628 06633 06634 06636 06637 06639 06641
06647 06648 06649 06659 06660 06769 07074 07231*
07253* 07270 07271 07282 07333 07366* 07387 07401
07410 07718* 07721* 07730* 07734* 07768 07771 07877*
07879* 07882* 07883* 07886* 07888* 07889* 07890* 07892*
07893* 07894* 07896* 07898* 07903* 07909 07917 07918
07920 07924 07925 07927 07928 07929 07930 07933
07947 07948 07951 07952 07954 07957 07958* 07992*
08008* 08633* 08639* 08640* 08678 08680 08681 08728*
08753* 08777 08785* 08804 08814 08829* 05283*
ENZYMES,LIVER SERUM
SEE ALSO ALKALINE PHOSPHATASE
SEE ALSO LIVER DISEASE DIAGNOSIS
00110* 00137* 00140* 00201* 00202* 00211* 00222* 00232*
00234* 00239* 00259 00265 00267 00281 00494 00684*
00685* 00697* 00701* 00705* 00722 00774* 00777* 00778*
00787 00803 01195* 01206* 01209* 01218* 01221 01225
01247 01536* 01539* 01550* 01552* 01558 01567 01606*
01615 01619 01627* 01630* 01643 01937 01961 01967
02008* 02012* 02018* 02030* 02042 02056 02191* 02343*
02350* 02388 02389 02418* 02439 02441 02454* 02461
02500* 02556 02808 02813 02814 02829 02838 02842
02851 03131* 03186 03214 03215 03218* 03222 03233*
03237* 03246 03411 03615* 03633 03649 03650 03668
03690 03714 04137* 04159 04440 04549* 04861* 04949
05017 05259* 05266 05392* 05404* 05414 05424 05916*
05937 06030 06054* 06075* 06111 06599* 06652 06707*
06759 07252* 07256* 07368* 07390* 07391* 07403 07900*
07992* 08008* 08622* 08627* 08638* 08641* 08804
ENZYMES,PANCREAS
00009* 00019 00062* 00094* 00097* 00100* 00101* 00102*
00108* 00185* 00206* 00209* 00274 00292 00562* 00639*
00644* 00657 00668* 01046* 01059 01111* 01114 01115
01116 01188 01220 01229 01438 01469 01516* 01775
01816* 01906* 01907* 01909* 01910* 01914 01916 01919
01986* 01990 01991 01992 01996 01998 02005* 02047
02057 02058 02059 02060 02246 02304* 02318* 02320*
02321* 02328 02329 02334 02337 02338 02691* 02692*
02776 02796 02837 02844 03129* 03130* 03133* 03134*
03138 03143* 03236* 03486* 03531 03599* 03615* 03672
04072 04074 04075 04277* 04386* 04388* 04391 04392
04393 04394 04395 04396 04397 04398 04399 04522
04830* 04831* 04832 04835 04838 04839 04842 04843
04851* 04857 05000 05102* 05259* 05260* 05261* 05263*
05263* 05413 05422 05431 05869 05877 05878 05879
05880 05884* 05885 05896 06030 06385 06550* 06554*
06563 06767 07213* 07866* 07867* 07874 07938 08031
08424 08859
ENZYMES,PLASMA
03223
ENZYMES,RECTUM
02254*
ENZYMES,SALIVARY GLAND
01999 04075

ENZYMES,SERUM
01222 01764 02022* 05785 07523* 08363
ENZYMES,SMALL INTESTINE
00002* 00004* 00012* 00062* 00065* 00234* 00528* 01005*
01008* 01016* 01022* 01023* 01033 01044* 01180* 01182*
01183* 01438 01822* 01830 01831 01843* 01987* 01989*
02147* 02235* 02237* 02662* 02825 03045* 03053 03236*
03445* 03492 03672 03705 04328 04487* 04489* 04492
04493 04538 04566 04678 04689 05082 05097* 05098*
05208* 05360* 05362* 05364* 05365* 05367* 05598* 05720*
06667* 06668* 06669* 06672 06673 06678 06962 07080
07106* 07660 07960* 07961* 07962* 07963* 07964* 07965*
07969 08164 08412*
ENZYMES,STOMACH
00007* 00008* 00073* 00075* 00087 00092 00364* 01033
01046* 01189 01819* 01837 01893* 02214 02637 03462*
03463* 03515* 03516* 03521 03943 04060 04305 04348*
04353* 04354* 05082 05097* 05465 06536* 06925 07745
07834* 07841* 07845* 07859
ENZYMES,URINARY
00209*
EPILEPSY
02158
EPINEPHRINE
00035* 00052* 00137* 00162 00214* 01174 01990 03228
ESCHERICHIA COLI
00630* 00661* 00690* 00948 00971 01159 01491* 01533*
01607* 01731* 01750 02505* 03111 03126 03332 03592
03711 03903 06371 06388 06443 06444 06445 06446
06448 06943* 07638 07664 07667 07671 07674 07677
07681 07684 07686 07687 07688 07689 07690 07702
07740 07982 08029 08039 08462 08479 08894* 08979
ESOPHAGITIS
00230* 00247 00316* 00317* 00319* 00322 00340 00342
00402 01003 01261 01272* 01274* 01279* 01280* 01282
01287 01294 01300 02061* 02084 02212 02761* 02862*
02872 02886 02892 03006* 03746 03754 03764 04046
04542* 04600* 04606 05435 05491 05495 05507 05508
05587 05715 06809 06816 06823 06840 06881 06914
08005* 08064* 08067* 08079* 08086 08094
ESOPHAGITIS ETIOLOGY
01275*
ESOPHAGITIS PROPHYLAXIS
02124
ESOPHAGITIS,EXPERIMENTAL
01275*
ESOPHAGUS
SEE ALSO ACHALASIA
SEE ALSO HERNIA
SEE ALSO HIATUS HERNIA
00319* 01279* 02089 02677* 04282* 05252 06789* 06790*
ESOPHAGUS ANGIOGRAPHY
04618
ESOPHAGUS ANOMALIES
00085* 00319* 00327 00333 00339 00342 00343 01261
01279* 01286 01295 01296 02063* 02073 02076 02080
02093 02096 02876 02877 03071* 03751 03752 03769
03786 03787 03788 03789 04618 05480 05511 06368
06802 06805 06807 06818 06838 06842 08081 08094
08095 08097 08098 08129 08131 08987
ESOPHAGUS ATRESIA
00331 00339 00350 00972 01295 01296 02893 03774
05007 05478 06265 06802 07154 07543 08062* 08066*
08077* 08081 08098 05477

ESOPHAGUS BIOPSY
00296 01285 02632 02804 02869* 02891 03728 03745
04046 05434 08005* 08132
ESOPHAGUS CANCER
00296 00304 00317* 00321 00338 00343 00423 01278*
01279* 01282 01285 01292 01293 01300 01301 01302
01780 01800 02029* 02062* 02067* 02074 02075 02081
02082 02083 02085 02087 02092 02095 02881 02883
02890 02891 02896 02954 03472 03733* 03741 03746
03753 03762 03763 03764 03767 03770 03778 03783
03790 03791 03819 04054 04239 04282* 04597* 04602*
04604 04605 04609 04610 04614 04615 04620 04643
05088 05471* 05473* 05497 05501 05504 05511 05563
06249 06791* 06792* 06803 06829 06833 06856 08073*
08075* 08093 08120 08126
ESOPHAGUS CARCINOGENESIS
06829
ESOPHAGUS CIRCULATION
01280* 01673 02075 04501* 04534 06827 07973*
ESOPHAGUS DEVELOPMENT
00319* 02877 03071*
ESOPHAGUS DIAGNOSIS
00049* 00229* 00230* 00233* 00247 00251 00296 00304
00311* 00315* 00316* 00318* 00322 00323 00325 00327
00329 00331 00332 00335 00340 00341 00342 00343
00347 00351 01198* 01204* 01261 01270 01273* 01276*
01282 01285 01290 01292 01300 02002* 02007* 02071
02073 02088 02089 02090 02091 02093 02096 02759*
02761* 02779 02804 02822 02857 02863* 02869* 02870*
02872 02877 02884 02885 02886 02887 02888 02893
ESOPHAGUS DIAGNOSIS
CONTINUED
02894 02897 03640 03646 03655 03673 03685 03686
03709 03717 03721 03726 03727 03728 03730* 03732*
03739* 03742 03743 03744 03745 03746 03747 03749
03752 03761 03765 03766 03769 03771 03772 03774
03777 03779 03780 03785 03786 03842 04046 04234
04596* 04606 04618 04619 04620 04621 04634 04867*
05029* 05048 05149 05434 05435 05452 05476 05482
05492 05493 05496 05499 05503 05505 05506 05508
06250 06511 06785 06792* 06795* 06799* 06801 06808
06812 06814 06816 06832 06833 06834 06836 06838
06842 06846 07997* 08054 08078* 08079* 08083 08091
08102 08103 08106 08109 08110 08114 08132 08987
ESOPHAGUS DISEASE EPIDEMIOLOGY
06795*
ESOPHAGUS DISEASES
00320 02866* 02876 03646 03745 03749 03764 03771
03780 04046 04606 05049 05483 06812 06834
ESOPHAGUS DIVERTICULA
00304 00343 01285 02091 02881 02889 02893 02894
03646 03750 03764 03771 03791 04621 05467* 05506
05509 05510 06804 06830 06834 06845 06850 08089
06789*

ESOPHAGUS DYSPHAGIA
00049* 00230* 00296 00310* 00313* 00320 00323 00332
00334 00341 01198* 01273* 01277* 01280* 01292 01300
01333 02067* 02070 02212 02865* 02880 02884 02891
02894 02897 03742 03749 03754 03777 03778 03788
04046 04336* 04599* 04618 05492 05495 05715 06511
06806 06836 08073* 08075* 08077* 08082 08084 08086
08087 08095 08106
ESOPHAGUS ENDOSCOPY
00230* 00251 00296 00311* 00312* 00316* 00322 00332
00340 00343 00347 01204* 01270 01272* 01285 01303
02002* 02071 02084 03636 03646 03725 03730* 03735*
03747 03752 03785 03786 04542* 04590 04621 05434
05504 05510 05924* 06839 08005* 08109

ESOPHAGUS FISTULAS
00327 00333 00339 00343 00346 00350 01261 01278*
01301 01302 02063* 02086 02091 02892 03685 03686
03774 03778 03782 03790 03791 03827 04602* 05048
05477 05478 06337 06802 06804 06838 08062* 08081
08103 08128 06825
ESOPHAGUS HISTOLOGY
00319* 00482* 01275* 02804 02865* 03457* 04282* 05508
06249 06829 07776*
ESOPHAGUS IMMUNOLOGY
00055*
ESOPHAGUS IN CHILDREN
00327 00329 00331 00333 00339 00350 01290 01295
01296 02063* 02887 03736* 03752 03765 03772 03773
03774 03775 03776 03827 04596* 05476 05478 05480
05496 06802 06820 06824 06831 08079* 08081 08091
08107 08111 08112 08113 08114 08115 08116 08117
08118 08119 08131
ESOPHAGUS INJURIES
00324 01275* 01278* 01284 02067* 02868* 02878 03396
03685 03731* 03744 03759 03779 03780 03781 03782
05503 08096 08100 08126 08128
ESOPHAGUS MANOMETRY
00049* 00233* 00313* 00314* 06794* 06799* 08078*
ESOPHAGUS MICROORGANISMS
05495 08086
ESOPHAGUS MORPHOLOGY
00319* 01035 01286 01293 02075 02079 02093 02875
03500 03640 03724 03725 03790 04516 05042 07832
08064* 08112 08120
ESOPHAGUS MOTILITY
00055* 00233* 00310* 00313* 00314* 00334 01067* 01069*
01074* 01261 01299 02065* 02070 02638 02759* 02761*
02875 02882 03727 03739* 03743 03745 03766 03772
03775 04211 04336* 05482 05507 06245 06511 06789*
06799* 06812 08087 08090 08124
ESOPHAGUS MUCOSA
00296 00319* 00329 00340 01270 01275* 01298 02007*
02093 02638 02759* 02878 02889 03734* 03750 03789
04501* 04608 05434 07997*
ESOPHAGUS NEOPLASMS
01300 02086 02551* 02869* 03792 04616 05435 08082
ESOPHAGUS NEOPLASMS,BENIGN
00318* 02822 03655 03732* 03736* 03742 03747 05434
05485 06797* 06846 08106
ESOPHAGUS NEOPLASMS,MALIGNANT
00349 00423 01279* 01292 02062* 02092 02804 02871*
02883 02890 02891 02896 02954 03472 03733* 03741
03742 03778 04054 04542* 04602* 04611 04614 04615
04619 04620 05048 05275* 05470* 05471* 05473* 05497
05501 05511 05563 06791* 06792* 06797* 06798* 06801
06804 06806 06813 06814 06829 06830 06847 06848
06849 06854 07973* 08068* 08070* 08071* 08072* 08075*
08088 08103 08104 08106 08120 08121 08122 08242

ESOPHAGUS OBSTRUCTION
00320 00329 00332 00336 00341 00342 01333 02884
02894 02897 03772 03773 03775 03779 04596* 04610
05475 06791* 06797* 08068* 08079* 08105 08133
ESOPHAGUS PATHOLOGY
00325 00327 02865* 02866* 02869* 02876 02886 02919
03269 03750 03766 03767 03787 03790 04282* 04606
04608 04611 05481 05503 05507 05508 06822 06824
06827 06841 08073* 08078* 08099 08126
ESOPHAGUS PERFORATION
00230* 00332 00342 01204* 01280* 01284 01297 01301
02078 02892 02893 03744 03776 03779 03780 05031*
05505 05509 06815 06823 06825 06832 06858 08127
ESOPHAGUS POLYPS
05715
ESOPHAGUS PROSTHESIS
01303 02086 02881 05488 06813 06854 08096 08122
08123 08124
ESOPHAGUS RADIOLOGY
00229* 00247 00304 00315* 00322 00323 00325 00327
00340 00341 00343 00347 00351 01074* 01198* 01261
01272* 01273* 01276* 01277* 01282 01285 01290 01300
01301 02002* 02007* 02087 02088 02089 02093 02094
02096 02804 02822 02863* 02870* 02887 02888 02893
02897 03269 03500 03640 03646 03655 03685 03686
03709 03724 03726 03727 03730* 03732* 03742 03743
03745 03746 03747 03749 03752 03754 03761 03765
03766 03769 03771 03772 03774 03777 03780 04046
04234 04601* 04617 04618 04620 04621 05042 05048
05149 05434 05435 05452 05476 05481 05482 05485
05490 05493 05496 05506 05924* 06785 06794* 06808
06819 06827 06832 06833 06834 06835 06836 06839
06857 08005* 08054 08072* 08079* 08080* 08083 08087
08088 08090 08091 08097 08099 08102 08103 08106
08114
ESOPHAGUS REFLUX
00049* 00085* 00247 00309* 00314* 00315* 00319* 00322
00325 00340 00480* 01069* 01074* 01198* 01272* 01273*
01274* 01275* 01276* 01277* 01279* 01282 01293 01294
01299 02064* 02124 02212 02759* 02761* 02875 02882
03727 03737* 03755 03941 04606 05435 05472* 05491
06325 06367 06794* 06799* 06800* 08064* 08079* 08084
08092 08094 08095 08108 08274 08803
ESOPHAGUS RUPTURE
02088 05484 05493 06810 06858

ESOPHAGUS SPASMS
01261 01283 01293 02094 02212 03730* 03749 04599*
05482
ESOPHAGUS SPHINCTER
00049* 00233* 00296 00310* 00313* 00314* 00340 01035
01069* 01074* 01261 01273* 01293 01294 01299 02065*
02073 02075 02761* 02864* 02865* 03500 03739* 03755
03766 05195* 05196* 06323 06324 06794* 06800* 06857
07776* 08437*
ESOPHAGUS STRICTURE
00316* 00329 00336 00339 00340 00349 00947 01272*
01274* 01279* 01285 01300 02067* 02073 02079 02084
02212 02862* 02866* 02881 03066* 03731* 03737* 03742
03746 03751 03754 03785 03786 03787 03789 04211
04542* 05435 05467* 05468* 05471* 05473* 05476 05481
05502 05507 05508 05582 06324 06368 06797* 06805
06806 06807 06809 06895 08077* 08079* 08085 08094
08095 08096 08116 08119 08130 08131 05503

ESOPHAGUS SURGERY
00309* 00311* 00316* 00318* 00321 00328 00329 00331
00332 00333 00336 00337 00339 00340 00341 00344
00345 00347 00348 00349 00350 00947 01035 01272*
01274* 01277* 01278* 01279* 01281 01284 01286 01287
01290 01291 01295 01296 01299 01303 01605 02061*
02062* 02063* 02064* 02067* 02070 02071 02073 02074
02076 02077 02078 02079 02080 02084 02086 02088
02089 02092 02094 02095 02096 02112 02373 02863*
02865* 02867* 02872 02876 02877 02881 02884 02885
02892 02893 02897 03066* 03338 03396 03655 03729*
03730* 03731* 03736* 03739* 03750 03751 03752 03754
03755 03756 03757 03759 03762 03763 03767 03770
03771 03776 03777 03778 03779 03780 03782 03783
03784 03790 03791 03792 03892 04598* 04599* 04602*
04603 04604 04610 04611 04612 04618 04621 04867*
05029* 05031* 05088 05434 05467* 05468* 05469* 05470*
05471* 05472* 05473* 05474 05476 05477 05478 05480
05483 05486 05487 05488 05490 05493 05496 05497
05498 05499 05502 05503 05504 05506 05507 05509
06511 06789* 06797* 06798* 06800* 06804 06805 06806
06807 06816 06817 06819 06820 06821 06823 06825
06830 06832 06842 06850 06851 06854 06855 06858
07454 07648 07650 07973* 08062* 08066* 08067* 08070*
08071* 08072* 08075* 08077* 08080* 08081 08084 08085
08089 08092 08095 08096 08097 08101 08105 08117
08118 08120 08122 08123 08124 08125 08127 08128
08274
ESOPHAGUS TRAUMA
00311* 00324 00329 00336 00343 01278* 01281 01284
02064* 02078 02088 02089 02212 02863* 02888 03759
03782 04604 04608 04612 04613 05468* 05490 05509
06803 06868* 08105 08130
ESOPHAGUS TREATMENT
00311* 00351 01290 02084 02094 04590 04603 04608
05029* 05467* 05468* 05471* 05482 05503 06809 06811
06813 06814 06827 06846 06856 08062* 08072* 08080*
08987
ESOPHAGUS ULCERS
01276* 01279* 01297 02225 03351 03734* 03737* 03746
03892 04046 04634 05504 05715 06914 08437*
ESOPHAGUS ULTRASTRUCTURE
01298 02638 04615
ESOPHAGUS VARICES
00230* 00312* 00346 00347 00708* 00752 00755 00827*
00831 00933 01198* 01256 01289 01291 01293 01605
01652* 01661 01673 01733* 02003* 02066* 02077 02373
02471* 02477* 02478 02585 02779 02848 02885 03286*
03351 03652 03735* 03738* 03764 03767 03794* 04203*
04542* 04607 04867* 04964* 04965* 04967 05029* 05033*
05435 05479 05487 05489 05499 05908* 05924* 06027
06067 06096* 06106 06112 06124 06341 06765 06796*
06811 06821 06828 06839 06843 06844 06917 07330
07439 07454 08065* 08069* 08244* 08667 08677 08784*
ESOPHAGUS,AGE EFFECTS ON
06857
ESOPHAGUS,CLINICAL STUDIES OF
08068*
ESOPHAGUS,DISEASES ASSOCIATED WITH
02866* 05481 06835 08078* 08081 08090 08099
ESOPHAGUS,DRUG TREATMENT OF
00351
ESOPHAGUS,FOREIGN BODIES IN
00229* 00332 00346 01278* 01301 02071 03776 04617
05031* 08083 08091 08102 05504

ESOPHAGUS,NERVOUS CONTROL OF
00334 00351 01067* 01069* 01273* 01283 02638 02880
02882 03457* 03769 03773

ESOPHAGUS,TOXIC EFFECT ON
06823
ESOPHAGUS,TOXIC EFFECTS ON
00336 02862* 02886 03396 03781 04608 05502 05503
06809 06868* 06895 08100
ETHIONINE
01121* 07934
ETHIONINE IN LIVER INJURIES
02431
ETHNIC FACTORS
03341 05802 06282 08782* 08877 08926

EXCRETION,AMMONIA
03554* 04256
EXCRETION,BILE
00051* 00148 00434* 00680* 01126* 01146* 02728 02793
03557 04310* 04333 04425* 04426* 04432* 04447 05113*
05293* 05295* 05345 06228* 06486 06591* 07273 07775*
07784* 07804 07902* 07913
EXCRETION,BILIARY TRACT
07794
EXCRETION,COPPER
00707* 07899*
EXCRETION,ELECTROLYTE
01660 07172 07570 07788 08363 08592 06291
EXCRETION,IRON
06496
EXCRETION,KIDNEY ELECTROLYTE
07791
EXCRETION,LIVER AMMONIA
00295 00745 00752 00835 01150* 01171 01547* 01550*
01590 01654* 01973 02001* 02003* 02355 02502* 02720
02827 03213 03478* 03554* 04087* 04321* 04430* 04536
07877* 08618* 08678 08680 08681
EXCRETION,SODIUM
03362 05164*
EXCRETION,STEROID
01176*
EXCRETION,TRACE ELEMENT AND MINERAL
00707* 04333
EXFOLIATIVE CYTOLOGY
00238* 00370* 00419 01007* 02786 05560 06710* 06862*
07769
EXPERIMENTAL CIRRHOSIS
00704* 00828* 00829* 01569 01609 02479* 05353 06066
07441 08811

EXPERIMENTAL ESOPHAGITIS
01275*
EXPERIMENTAL GASTRITIS
04361*
EXPERIMENTAL HEPATITIS
07422 08774
EXPERIMENTAL PANCREATITIS
00661* 00664* 00666* 00668* 01112* 01518 02321* 02322*
02323* 04066* 04385* 04388* 04390* 05258* 05884* 05891
05892 05897 07223 08594* 08595* 08600* 08611
EXPERIMENTAL PERITONITIS
01812
EXPERIMENTAL STEATOSIS
08416
EXPERIMENTAL STUDIES OF CANCER
07921 07922 08241 08685 08240
EXPERIMENTAL STUDIES OF CIRRHOSIS
07427* 08814
EXPERIMENTAL STUDIES OF HEPATITIS
03246 04949
EXPERIMENTAL STUDIES OF LIVER
05314 07879*
EXPERIMENTAL STUDIES OF SCHISTOSOMIASIS
03238*

EXPERIMENTAL SURGERY TECHNIQUES
06689*
EXPERIMENTAL SURGICAL APPARATUS
05807
EXPERIMENTAL SURGICAL TECHNIQUES
00386 00563* 00677* 01331 01352* 01354* 01722* 02371
02541* 02552* 03128* 03129* 03315* 03599* 05204 05357
05385 05739* 06197 06558 06571* 06796* 06798* 07838*
07915
EXPERIMENTAL ULCERS
00022 00375 00478* 00483 00517 01089* 01389* 01392*
01397* 01405 01406 01416 02187* 02200* 02213 02673*
03001* 03010* 03466* 03917* 04356* 04359* 04504* 05143
06289 07994*
EXRETION,BILE
06048
EXTRACTS,LIVER
00138* 00169 00174 00175 01156 01160 01543* 01625*
01825 01932 02601 04520 04919 05150 05918* 07762
07954
EXTRACTS,PANCREAS
00094* 00108* 06554*

FAMILIAL DISEASES
00452 00462 00546 00549 00613 00624 00693* 00705*
00707* 00758 00842 00911 01333 01457 01484 01487
01517* 01537* 01548* 01553* 01574 01653* 01940 02250
02347* 02351* 02368 02398 02876 02977 02979 03057
03095 03154* 03183 03412 03720 03773 03931 03966
03973* 03987 03988 04011 04056 04100 04111 04720
04721 04769 04780 05024* 05529 05563 05611 05819
05933 05969 05973 06005 06015 06080 06107 06178
06253 06303 06583* 07062* 07140 07172 07228* 07267
07270 07338 07585 07603 07631 07657 08335* 08536
08578 08993
FAT ABSORPTION
00530* 05162* 07065*
FAT METABOLISM
02304* 05184 05373
FATS
SEE ALSO DIGESTION
SEE ALSO LIPID ABSORPTION
SEE ALSO LIPIDS
SEE ALSO LIVER LIPID METABOLISM
SEE ALSO MALABSORPTION
00123* 00173 00180* 01162 01271 01809 02042 02472*
02698* 02801 02861 03055 04477 04761* 04905 05665*
06328 06401* 06613 07089 07723* 07842*
FATTY ACID ABSORPTION
00025* 00040 00161 00191 00274 00657 01041* 01042*
01051 01056 01351* 01426* 01851 01853 01990 02027*
02154 02236* 02416* 02705* 02726 02823 02861 03022
03397 03479* 03542* 03543* 03587 03596* 04311* 04327
04750* 04761* 04843 06478* 07777*
FATTY ACID METABOLISM
01922* 05301 06045 06603 06628 07888*
FATTY ACID SYNTHESIS
01968 04454
FATTY ACIDS
00100* 00166 00184* 01051 01081* 02707* 02801 03548*
04151* 04308 04350 04365* 04402* 04404* 04407* 04414*
05282* 05292* 05364* 06574* 06577* 06598* 06599* 06642
07730* 07903*
FATTY LIVER
00109* 00126* 00172 00173 00558 00671 00701* 00712
00759 00761 00766* 00769* 00773* 00828* 00829* 01543*
01576 01618 01674 01921* 01925* 01972 02042 02097*
02346* 02364 02416* 02417* 02431 02435 02475* 02493
02709* 02806 02807 02812 02814 03187 03192 03535*
03545* 03569 03580 03706 04098 04102 04109 04130

FATTY LIVER
CONTINUED
04151* 04280* 04502* 04562 05105* 05209 05279* 05323
05963 05973 06021 06026 06055* 06105 06122 06125
06132* 06172 06598* 06651 06746 07366* 07395* 07425*
07446 07448 07455 07456 07463 07464 07877* 08642*
08643* 08728* 08731* 08740 08821 08824
FECES
00043 00183* 00434* 00557 00610 00612 00626 00657
00814 00884* 00897* 00912 00917 00927 00973 00974
01307* 01430* 01748 01757 01770 02545* 02546* 02748
02801 02840 03111 03316* 03332 03481* 03606 03692
03962* 04260 04546* 04559 04563 04761* 04832 05024*
05037 05067 05173 05455 05459 05777 05816 05842
06150 06224* 06327 06339 06359 06390 06490 06496
06581* 06582* 06718* 06726 06776 06777 07075 07084
07106* 07114 07226* 07429* 07598 07638 07679 07740
08019 08029 08441* 08921 09006 09026
FIBROSIS
02357
FIBROSIS,CYSTIC
SEE MUCOVISCIDOSIS
FIBROSIS,LIVER
01599 05952 07074

FISSURES,ANUS
01477 05815

FISTULAS,ANORECTAL
01489
FISTULAS,ANUS
00623 01460 01462 02260 04779 04786 05715 07097*
08455 08485
FISTULAS,BILIARY TRACT
00682* 00717 00719 00969 01478 01696 01708 01710
01711 02509 02511 02514 02516 03028 04175* 05002
05006 05020 05334 05415 06176 06187 06218 07907
07911 08851
FISTULAS,DUODENUM
00344 00463 01707 01919 02169 02177 02208 02528
02782 04696 04993 05620 05647 06923 06959 08289
08307 08317 08382 08962
FISTULAS,ESOPHAGUS
00327 00333 00339 00343 00346 00350 01261 01278*
01301 01302 02063* 02086 02091 02892 03685 03686
03774 03778 03782 03790 03791 03827 04602* 05048
05477 05478 06337 06802 06804 06838 08062* 08081
08103 08128 06825
FISTULAS,GALLBLADDER
00682* 02523 02528 03028 04095* 04993 06067 06176
06220 06251
FISTULAS,GASTROINTESTINAL
00612 00907 00976 01053 01478 03436 03834 04175*
04217 05415 07034 08403 08919 07520*
FISTULAS,LARGE INTESTINE
00468* 00596 00608 00612 01471 01478 01500 01708
02177 02262 02983 03070* 03078* 03080* 03436 04034
04744 05636 05764 06510 06912 07034 08506 08515
08965 05645 05783 06251 08174 08895*
FISTULAS,LIVER
00723 02091 02480 07291
FISTULAS,PANCREAS
00645* 00654 01527 02309 02693 02782 03526* 03599*
07863* 08566 05862

FISTULAS,RECTUM
02260 02975 03980 03990 04777 08515 07788 05782
FISTULAS,SMALL INTESTINE
00463 01041* 01375 01751 02159 02173 02511 02983
03036* 03059 03123 03436 04697 04744 05555 05636
05710* 06987 07034 08247* 08895* 08965 05645 06251
FISTULAS,STOMACH
00078* 00397 00468* 01082* 01084* 01086* 01091* 01093*
01201* 01478 03123 03509* 03519 03834 04034 04360*
04484* 05555 06176 06534* 06882 07572 07835* 07861
08226 08233 06251 07857* 08174 06251

FOLIC ACID
00195 01327 02108 02358 05165* 06495 06675 07091
FOLIC ACID ABSORPTION
00540 00552 00554 00556 00560 01044* 01052 02650
03209 05729 07077
FOLIC ACID IN MALABSORPTION TREATMENT
00555 00556 03058 07081
FOREIGN BODIES IN BILIARY TRACT
07511
FOREIGN BODIES IN DUODENUM
05031*
FOREIGN BODIES IN ESOPHAGUS
00229* 00332 00346 01278* 01301 02071 03776 04617
05031* 08083 08091 08102
FOREIGN BODIES IN GASTROINTESTINAL TRACT
06337 07179 07624 08152 08156
FOREIGN BODIES IN LARGE INTESTINE
03107 04028 06969
FOREIGN BODIES IN SMALL INTESTINE
06951 06969 08288
FOREIGN BODIES IN STOMACH
00420 05031*
FOREIGN BODIES IN THE ESOPHAGUS
05504
FOREIGN BODIES IN THE STOMACH
06879
FREEZING TREATMENT
03012* 06939
FREEZING TREATMENT OF PEPTIC ULCERS
00409 00411 02098* 08329*
FRUCTOSE
06574* 07882*
FRUCTOSE ABSORPTION
06522 07074 08409* 08420 08786*
FUNGUS DISEASES
01334 01738 01765 05820

GALACTOSE ABSORPTION
00040 01060 01433 02573 04317* 05457 05730 05997
06097* 07061* 07062* 07067* 07264 08796
GALLBLADDER
SEE ALSO BILIARY TRACT
SEE ALSO CHOLECYSTITIS
SEE ALSO CHOLELITHIASIS
00850* 01680* 04074 04270* 05693 07849*
GALLBLADDER ABSORPTION
00024* 00035* 01065 03631 07807
GALLBLADDER ANGIOGRAPHY
03311
GALLBLADDER ANOMALIES
00270 00882 01512 01686 02508 02518 03294 03298
03308 04170* 04836 04991 05124 06157 06221 07514
08869
GALLBLADDER BIOCHEMISTRY
00024* 02526 03631 05292* 08878
GALLBLADDER CANCER
00847* 01677* 01678* 01703 04108 04186 04188 04698
04994 05010 05710* 06129* 06131* 06166 06193 06210
07497 08232 08829*
GALLBLADDER CIRCULATION
06212 07975
GALLBLADDER CYSTS
02519 06140 07489
GALLBLADDER DEVELOPMENT
06194
GALLBLADDER DIAGNOSIS
00248 00270 00275 00859 00866 00872 00873 00875
00882 00992 01212* 01243 01683 01703 01705 01756
02016* 02383 02534 02843 02860 03294 03295 03309
03310 03311 03712 04177* 04181 04183 04187 04994
05466 05608 06155 06157 06167 06186 06193 06200
06205 06214 06221 06754 06764 06788 07473* 07474
07514 07819 08017 08045 08830* 08834* 08840 08849
08850 08860 08861 08954

GALLBLADDER DISEASE DIAGNOSIS
02515 07492 08883
GALLBLADDER DISEASE ETIOLOGY
00847* 00873 01633 06134* 06212 08829*
GALLBLADDER DISEASE TREATMENT
08840 08872 08874 08883 08888
GALLBLADDER DISEASES
00859 00863 00866 00878 01287 01512 01600 01684
01708 01770 02513 02519 03156* 03265* 03311 03312
03851 04987 04995 05912* 05967 06054* 06155 06163
06170 06177 06211 06215 07472* 07498 07515 07975
08602 08673 08830* 08834* 08843 08847 08852 08861
08875 08876 08882 08884 08885 04172* 06238*
GALLBLADDER DISEASES IN CHILDREN
08840 08841
GALLBLADDER DIVERTICULA
07476
GALLBLADDER FISTULAS
00682* 02523 02528 03028 04095* 04993 06067 06176
06220 06251
GALLBLADDER HISTOLOGY
00850* 01006* 01680* 01686 04276* 05108* 05280* 07476
08829*
GALLBLADDER IMMUNOLOGY
01535* 01682
GALLBLADDER IN CHILDREN
00882 01715 02028* 04170* 07496 08847 08852
GALLBLADDER MORPHOLOGY
02028* 02508 04170* 05124 06157 06194 06434 06505*
07819
GALLBLADDER MOTILITY
00051* 00053* 00415 01065 01071* 01682 01700 01705
02028* 02506* 02652* 02816 03497* 04464 05203 06238*
06506* 07810* 07819
GALLBLADDER MUCOSA
00850* 01006* 01710 03312 03477 04276* 04995 06173
06180 06212 06518 07496 07515 08842
GALLBLADDER NEOPLASMS
00859 04177* 04208* 06193 07498
GALLBLADDER NEOPLASMS,BENIGN
00858 00868 01463 02525 06191 06212 07476 08882
GALLBLADDER NEOPLASMS,MALIGNANT
00847* 04108 04186 04188 04698 05608 06149 06166
07501 08835*
GALLBLADDER OBSTRUCTION
02016* 03311 05965
GALLBLADDER PATHOLOGY
00850* 00858 00863 00866 00868 00875 01680* 02515
03295 04173* 04994 06180 06193 06211 06212 06216
07473* 07476 07496 07498 08841 08844 08854 08859
08875 08876
GALLBLADDER PERFORATION
00875 02528 04173* 04698
GALLBLADDER POLYPS
06180 06212
GALLBLADDER RADIOLOGY
SEE ALSO GALLBLADDER DISEASE DIAGNOSIS
00248 00307 00415 00858 00859 00866 00872 00992
01212* 01703 02016* 02347* 02756* 03309 03311 03311*
03712 04170* 04174* 04181 04183 04187 06164 06204
06205 06216 06221 06418 06788 07468* 07474 08826*

GALLBLADDER RUPTURE
07481
GALLBLADDER SECRETION
00024* 00850* 01113* 06505*
GALLBLADDER SURGERY
00115* 00844* 00846* 00853 00855 00860 00862 00873
00877 00896* 01676* 01677* 01679* 01702 01703 01704
01717 01718 02513 02514 02515 02518 02523 02525
02526 02527 02528 02533 02534 02800 02860 03281*
03295 03296 03299 03304 03309 03807 04085* 04095*
04131 04166* 04168* 04171* 04173* 04174* 04182 04186
04188 04283 04988 04989 04994 04995 05001 05006
05427 05890 06145 06149 06152 06157 06165 06167
06179 06186 06187 06190 06191 06211 06213 06214
06220 06221 06350 07468* 07470* 07471* 07472* 07497
07499 07500 07503 07509 07515 08826* 08827* 08829*
08832* 08835* 08842 08849 08859 08860 08872 08874
08881 08885 07500
GALLBLADDER TRAUMA
05018
GALLBLADDER TREATMENT
00860 02506* 06228*
GALLBLADDER ULTRASTRUCTURE
03477
GALLBLADDER VOLVULUS
02518
GALLBLADDER,AGE EFFECTS ON
01704
GALLBLADDER,DISEASES ASSOCIATED WITH
02455* 06054* 06132* 07482 07496
GALLBLADDER,DRUG EFFECTS ON
05203 07484
GALLBLADDER,DRUG TREATMENT OF
07501
GALLBLADDER,HORMONAL CONTROL OF
00053* 00994 01065 05171 05280* 06143 07273 07888*
GALLBLADDER,NERVOUS CONTROL OF
00363* 01682 02513 05108* 06518 07471*
GANGRENE
00326 01487 02543* 04193* 05777 05927 06232 06992
08481
GARDNERS SYNDROME
01457
GAS
00895* 00977 01234 01447* 01617 01779 01995 02753
02754 02755 03567 03434 03887 03889 04316* 04516
04517 04525 04526 05157* 05370 05712 05777 05994
06022 06319 06320 06321 06322 06323 06324 06325

GAS
 CONTINUED
  06345 06681* 07164 07490 08225 08475 08726
GASTRECTOMY
 SEE ALSO MALABSORPTION
 SEE ALSO MALIGNANT STOMACH NEOPLASMS
  00422 00426 00427 00500 00513 00515 00750 01096*
  01323 01329 01386 01388* 01388* 01396* 01402 01419
  01700 01752 01811 02107* 02119 02123 02139 02183
  02186* 02201 02214 02217 02219 02221 02222 02224
  02604 02900* 02905* 02909* 02921 02928 02933 02934
  02936 02941 02956 03008* 03016* 03018 03024 03050
  03123 03134* 03292 03396 03402 03680 03754 03781
  03793* 03800* 03816 03819 03831 03834 03848 03850
  03853 03858 03924* 03929 03933 03948 03949 04062
  04211 04492 04628* 04631* 04633 04635 04651 04667
  04709* 04713* 04714* 04731 04732 04849 05252 05427
  05455 05467* 05532 05539 05547 05557 05571 05573
  05574 05577 05678 05699 05862 06160 06244 06274
  06395 06516 06830 06853* 06875 06889 06894 06896
  06902 06903 06924 06933 06937 06963 07003* 07004*
  07007* 07009* 07016 07018 07046 07050 07069 08147
  08148 08161 08180 08181 08188 08223 08238 08331*
  08340 08358 08365 08373 08377 08400 08401 08584
  08895* 08919
GASTRECTOMY COMPLICATION TREATMENT
  00360* 00368* 00425 00428 00516 01318* 01331 01339
  01347 01771 02102* 02134 02208 03801* 03815 03831
  03836 04665* 04859 05545 05555 05589 06264 06869*
  08203 08212 08235 08347 08382 08390 09017 08289
GASTRECTOMY COMPLICATIONS
  00322 00363* 00386 00389 00396 00415 00416 00425
  00428 00431* 00440* 00474* 00480* 00483 00493 00507
  00516 00673 01025* 01312* 01314* 01317* 01318* 01324
  01337 01338 01339 01340 01345 01347 01355* 01398*
  01399* 01521 01705 02108 02111 02114 02138 02139
  02147* 02148* 02182 02188* 02194* 02208 02214 02224
  02328 02901* 02906* 03314* 03495 03509 03810 03828
  03844 03849 03851 03855 04065* 04630* 04646 04647
  04655 04709* 04711* 04733 04842 04843 05512* 05514*
  05517* 05528 05546 05552 05568 05588 05593 05656
  05723 05783 05877 05878 05879 05880 06266 06822
  06878 06885 06890 06923 07822 08004* 08136* 08138*
  08160 08169 08192 08193 08233 08369 08397 08583
  08627*

GASTRECTOMY COMPLICATIONS,MICROORGANISMS IN
  00363* 08134*

GASTRECTOMY TECHNIQUES
  00415 00417 01312* 01317* 01318* 01320* 01345 01391*
  01398* 01399* 02103* 02138 02190* 02584 02926 02929
  03798* 03823 03843 04649 04650 05588 08140*
GASTRECTOMY-INDUCED AFFERENT LOOP SYNDROME
  00360* 00368* 00425 00428 00440* 04655 05688 07812*
  08138*
GASTRECTOMY-INDUCED ANEMIA
  00360* 01318* 02015* 02108 05212 06866* 08027
GASTRECTOMY-INDUCED BONE DISEASES
  01313* 03959*
GASTRECTOMY-INDUCED DUMPING SYNDROME
  00308* 00356* 00360* 00368* 00386 00428 00431* 00440*
  00468* 00474* 00480* 00898* 01314* 01316* 01328 01338
  01375 01399* 02102* 02104* 02138 02680* 02762* 02908*
  03797* 03844 03924* 04199* 04543* 04673* 05545 05548
  05588 05656 05677 06869* 06885 07812* 08134* 08138*
  08255* 07030
GASTRECTOMY-INDUCED MALABSORPTION
  00360* 00368* 00386 00389 00428 00499 01313* 01318*
  01398* 02025* 02102* 02125 02146* 02906* 03959* 04330
  05665* 05723 06885
GASTRECTOMY-INDUCED METABOLIC CHANGES
  00356* 00368* 01313* 01318* 02125 02682* 03959* 04394
  04645 04843 05519* 06878 08164
GASTRECTOMY-INDUCED RECURRENT ULCER
  00360* 00493 00498 00507 00516 01318* 01339 01391*
  01398* 01399* 01766 02216 02111 03007* 03943

GASTRECTOMY,CLINICAL RESULTS OF
  00415 00416 00417 01886* 02901* 03009* 03796* 04667
  04711* 05512* 05520* 05557 05669* 06881 06912 07003*
  07004* 07007* 07032 07036 08138* 08142* 08400
GASTRECTOMY,DISEASES ASSOCIATED WITH
  01318* 01398* 05552 08134*
GASTRIC ANALYSIS
  01267
GASTRIC ANALYSIS IN STOMACH DIAGNOSIS
  00221* 00395 00405 00419 00421 01904 03507* 05250
  05509 08061
GASTRIC ANALYSIS TECHNIQUES
 SEE ALSO HEIDENHAIN POUCH STUDIES

GASTRIC ANALYSIS TECHNIQUES
 CONTINUED
  00085* 00091 00241 00261 00287 00302 01099 01101
  01104 01108 01249 01899 02051 02055 02680* 02817
  02818 03501* 04364* 04724 05184 05406* 05416 05595*
GASTRIC PARIETAL-CELL ANTIBODY
  03839
GASTRIC SECRETION
  02680* 05245 06259
GASTRIC ULCER TREATMENT
  03925*
GASTRIN
 SEE ALSO STOMACH
  00050* 00051* 00066 00067* 00085* 00086* 00104* 01064
  01065 01087* 01091* 01092* 01093* 01100 01101 01102
  01103 01104 01108 01115 01117* 01187 01190 01528
  01752 01760 01775 01869* 01875* 01877* 01879* 01886*
  01890* 01901 02214 02669* 02671* 02674* 02676* 02677*
  02678* 02684* 02690 02741* 03019 03030 03323* 03444*
  03504* 03511* 03522 03616* 03940 04229 04294 04377
  04378 04522 05116* 05224* 05229* 05231* 05233* 05237*
  05242 05245 05251 05253 05582 05853 06408* 06468*
  06529* 06530* 06537* 06545 06546 07044 07640 07810*
  07841* 07842* 07844* 07845* 07846* 07847* 07857* 07863*
  07869* 07876 08061
GASTRITIS
  00227* 00317* 00365* 00385 00394 00396 00403 00424
  00474* 00525 00933 01319* 01327 01392* 01394* 01424
  01724* 01733* 01760 01782 02109 02203 02213 02567
  02637 02905* 02915 02935 02938 02951 02952 02953
  03404 03464* 03503* 03794* 03813 03816 03836 03997
  04230 04267* 04361* 04367 04542* 04644 04672 05398*
  05514* 05529 05540 05561 05590 05591 06868* 06897
  06925 07206 07625 08060 08178 08215 08227 08968
  09015
GASTRITIS DIAGNOSIS
  00196* 00227* 00236* 00302 00364* 00373 00375 00379
  00402 01194* 01250 01325 02031* 02931 03689 04542*
  04585 04629* 05029* 05401* 05416 05521* 05556 05576
  06709* 06757 07640 08210 08220
GASTRITIS DIAGNOSIS,RADIOLOGY IN
  00392 00421
GASTRITIS ETIOLOGY
  00051* 00373 00375 00392 01336 02097* 02898* 03657
  04361* 05556 05568 05576
GASTRITIS PATHOLOGY
  00373 00375 00392 01319* 04651 05576 08220
GASTRITIS TREATMENT
  00373 00375 00392 00402 00421 00487 00898* 01003
  02118 02205 02899* 02931 02999* 03000* 03001* 03657
  04651 05556 05702
GASTRITIS,ATROPHIC
  00092 00236* 00371* 00373 00404 01416 01884* 02122
  02931 03009* 03461* 03490* 03503* 03840 05227* 05521*
  06076* 06709* 06906 08239 08446*
GASTRITIS,DISEASES ASSOCIATED WITH
  02898*
GASTRITIS,EXPERIMENTAL
  04361*
GASTRODUODENAL ULCERS
  06997* 07049 07651
GASTRODUODENITIS
  02098* 03935 03939
GASTROENTERITIS
 SEE ALSO COLITIS
 SEE ALSO ENTERITIS
 SEE ALSO ENTEROCOLITIS
  00359* 00522 00981 00987 01720* 03332 04223 04224
  04515 05429 06240* 06348 06361 06371 07524* 07574
  07618 07668 08916 08922 08944 08981 08997
GASTROENTERITIS EPIDEMIOLOGY
  03317* 03428 06224* 07598
GASTROENTERITIS ETIOLOGY
  01750 03323* 05087 06351 07556 08979
GASTROENTERITIS IN CHILDREN
  00973 01004 01720* 01734* 01750 02238* 02579 04245
  06306 06770 07535* 07592 07710 08956
GASTROENTERITIS TREATMENT
  00970 01720* 01743 01744 01801 02580 03000* 03323*
  07535* 08976
GASTROENTEROSTOMY
  00361* 00368* 00386 00397 00415 00417 00425 00480*
  00503 00507 00513 00516 00656 00937 01251 01328
  01331 01335 01340 01345 01388* 01388* 01391* 01414
  01419 01422 01425 02102* 02111 02124 02192* 02194*
  02197* 02212 02214 02217 02779 02924 03301 03512*
  03525 03921* 03924* 03945 03948 04649 04650 04713*
  05664* 06213 06863* 07004* 07009* 07016 07017 07018
  08206 08403
GASTROENTEROSTOMY,ROUX
  03402
GASTROENTRITIS
  00974

GASTROINTESTINAL ABSESSES
05158*
GASTROINTESTINAL ABSORPTION
00037 00038 00560 01051 01052 01066 01741 02632
02644 02748 02755 03596* 04287 04316* 04329 04332
04517 04525 05154* 05166* 05711 05730 06326 06476*
06482 06490 06499 06500 06501 07609 07797 07799
07802
GASTROINTESTINAL ANGIOGRAPHY
00240 00250 00923 00949 00962 01236 01260 01446*
02017* 02048 02849 02855 03639 03675 05397* 05436
05447 05448 05515* 05929 06250 06715* 07531* 07639
08059 06354

GASTROINTESTINAL ANOMALIES
01341 01798 02181 02549* 04238 06358 07543 07640
08182
GASTROINTESTINAL BIOCHEMISTRY
00063* 00157 00183* 00187 00191 00954 01027 01079
01184 01745 01815* 02632 04287 04316* 05097* 06527
08918
GASTROINTESTINAL BIOPOTENTIALS
02620* 02737*
GASTROINTESTINAL BIOPSY
00278 00297 00557 01222 01770 02861 04287 04314*
06737 07579
GASTROINTESTINAL BLEEDING
03328* 04734 05050 05475 05569 05607 05614 05616
05618 05679 05899 06141 06274 06311 06892 06930
07141 07218 07327 07328 07447 07453 07716 08186
08195 08262 08271 08279 08283 08297 08342 08392
08522 08542 08810 08904 08999 09017
GASTROINTESTINAL CALCULI
01769
GASTROINTESTINAL CANCER
00253 00900* 00934 00984 00996 01224 01780 01800
02281 02551* 02786 03371 03393 03610* 03675 03798*
03975* 03977* 04195* 04215 04597* 05429 05563 05728
06253 06288 06378 07101* 07108* 07532* 08041 08985
GASTROINTESTINAL CARCINOGENESIS
00979 07766
GASTROINTESTINAL CIRCULATION
00265 00405 00502 00901* 00923 00952 00962 01079
01446* 01724* 01799 02225 02572 02997 03324* 03409
04517 04525 05080 05449 06490 06693 07040 07309
07542 07587 07599 07978 07987 08713 08972
GASTROINTESTINAL CIRCULATION STUDY TECHNIQUES
01192 04521
GASTROINTESTINAL COMPLICATIONS
02779 03206 03717 03872 03937 04196* 04230 04236
04672 04696 04965* 05048 05200 05535 05543 05589
05700 05706 05762 05764 06269 06279 06294 06787
06933 06956 07026 07072 07328 07519 07561 07624
07627 07705 07713 07976 08082 08172 08186 08229
08271 08283 08370 08417 08420 08448 08537 08543
08810 08871 08904 08931 08941 08999 09016 09017
GASTROINTESTINAL CYSTS
06287 07692 08182
GASTROINTESTINAL DEVELOPMENT
07603
GASTROINTESTINAL DIAGNOSIS
00234* 00240 00249 00253 00257 00263 00264 00265
00266 00267 00268 00278 00280 00297 00456 00467
00523 00552 00912 00952 00976 00977 00992 00993
01077 01196* 01222 01236 01260 01264 01343 01735*
01736* 01754 01858* 02006* 02017* 02041 02044 02178
02547* 02549* 02573 02576 02588 02606 02762* 02777
02778 02781 02786 02803 02841 02846 02849 02855
02861 02915 02916 02917 02919 02956 02986 03115
03367 03372 03376 03431 03484 03615* 03630 03639
03642 03651 03656 03657 03659 03675 03676 03680
03694 03702 03717 03727 03744 03761 03779 03812
03825 03872 03886 03898 03930 03956 03957 03999
04055 04198* 04225 04230 04234 04235 04236 04252
04546* 04561 04571 04626* 05048 05049 05051 05415
05429 05445 05459 05460 05475 05564 05681 05715
05734 05844 06250 06255 06260 06290 06340 06358
06372 06387 06710* 06728 06734 06736 06740 06760
06762 06788 06826 06935 06956 06963 06984 07577
07587 07598 07603 07624 07633 07639 07640 07646
07696 07712 08020 08022 08024 08025 08041 08048
08059 08225 08411* 08573 08704 08919 08954 08960

GASTROINTESTINAL DISEASE DIAGNOSIS
06306 07574
GASTROINTESTINAL DISEASE EPIDEMIOLOGY
00559 00960 02196* 06347 06814 07094 07547 07574
07588 07638 08365 06240*
GASTROINTESTINAL DISEASE ETIOLOGY
01004 01743 02161 02174 02566 02568 03355 04760*
05073 06240* 06306 06347

GASTROINTESTINAL DISEASE,DRUG TREATMENT OF
05467*
GASTROINTESTINAL DISEASES
00240 00253 00905 00907 00909 00910 00952 00958
00973 00976 00981 01343 01349* 01432 01455 01765
01771 01772 02180 02264 02567 02577 02579 02604
02858 02919 03137 03141 03308 03328* 03333 03339
03346 03348 03355 03360 03361 03372 03376 03389
03394 03399 03433 03441 03657 03963 04200* 05068
05072 05218 05582 05736 06314 06367 06368 06375
06723 07532* 07602 07618 07639 07693 08206 08921
09023 06236* 07183*

GASTROINTESTINAL DISEASES IN CHILDREN
00918 01743 01744 02564 03379 05037 06240* 06253
07075 07094 08922 08971 09021
GASTROINTESTINAL DISEASES,BIOCHEMICAL DIAGNOSIS OF
00197* 07527*
GASTROINTESTINAL DISEASES,ENZYME TREATMENT OF
02611
GASTROINTESTINAL DIVERTICULA
05510 06845 07640
GASTROINTESTINAL DIVERTICULITIS
03322*
GASTROINTESTINAL ENDOSCOPY
01341 03372 03636 03651 03652 03744 05510 06367
07640
GASTROINTESTINAL ENZYMES
00187 01027 01222 02632 03942 05097* 05142 05729
06527
GASTROINTESTINAL EPIDEMIOLOGY
05072

GASTROINTESTINAL FISTULAS
00612 00907 00976 01053 01478 03436 03834 04175*
04217 05415 07034 08403 08919
GASTROINTESTINAL FUNCTION
01422 02764* 02919 03059 04288 04526 04561 06323
06325
GASTROINTESTINAL HISTOLOGY
00157 00297 00967 01021* 02544* 05564 06399* 07607
07766 08945
GASTROINTESTINAL IMMUNOLOGY
00271 00297 00900* 00919 00920 00946 00982 01021*
01062 01764 02237* 02840 03399 03503* 03657 04202*
04232 04274* 04361* 05453 05741* 06077* 06347 06394
06423 06694 07098* 07243* 07322 07601 07966* 08988
GASTROINTESTINAL INJURIES
00063* 02549* 02849 05031* 07705
GASTROINTESTINAL LYMPHOGRAPHY
03487* 04586
GASTROINTESTINAL MALABSORPTION
08424
GASTROINTESTINAL METABOLISM
00063* 01079 01222 02562 02715 02943 03362 03386
03631 03965 04287 05172 05359* 05428 07639 07797
GASTROINTESTINAL MICROORGANISMS
00183* 00559 00612 00752 00894* 00897* 00935 00965
00970 00971 00973 00974 00985 01004 01185* 01216*
01349* 01432 01439 01454* 01455 01474 01731* 01750
01762 01765 01783 01784 01785 01793 01794 01795
01796 01797 01801 01993 02505* 02543* 02547* 02613
02754 02755 02840 03359 03361 03367 03433 03476
03606 03607 03697 04214 04226 04287 04514 04515
04760* 05037 05038 05062 05067 05370 05374 05459
05842 06224* 06247 06258 06270 06271 06272 06274
06323 06347 06349 06388 06390 06694 06702 07162
07164 07309 07547 07563 07574 07576 07580 07585
07588 07592 07607 07610 07668 07729* 07737 08916
08922 08944 08951 08957 08966 08975 08976 08981
GASTROINTESTINAL MORPHOLOGY
00482* 00902* 01034 01422 02632 02841 06358 07693
GASTROINTESTINAL MOTILITY
00084* 00192 00280 00961 00977 01027 01057 01075*
01076 01077 01083* 01187 01198* 01314* 01337 01839*
01867* 01871 02547* 02660 02755 02760* 03363 03365
03379 03496* 03695 03797* 04246 04337* 04626* 05051
05191* 05197* 05198* 05205 05206 05370 05384 05430
06322 06325 06326 06498 06510 06514 06520 06763
07557 07709 07826 07827
GASTROINTESTINAL MUCOSA
00038 00063* 00157 00271 00452 00489 00894* 00980
01018* 01021* 01034 01052 01057 01723* 01726* 01730*
01786 01810 01815* 01994 02006* 02180 02544* 02585
02632 02661 02742* 02753 03054 03110 03369 03432
03433 03891 03942 04252 04287 04288 04517 04525
04747 05051 05097* 06077* 06383 06399* 06412* 06497
06666* 07601 07736* 07766 07774 08059 09022
GASTROINTESTINAL NEOPLASMS
00979 01478 01735* 01736* 02947 03095 03401 05078
05449 07587 07589 07603 07607 07640 07692

GASTROINTESTINAL NEOPLASMS,BENIGN
00942 01463 02551* 02786 03369 07532* 07649 08591
GASTROINTESTINAL NEOPLASMS,MALIGNANT
00942 00967 00996 01725* 01800 02010* 02786 03371
03393 03891 04198* 04225 05022* 05023* 05046 05061
05563 05636 06236* 06247 06254 06288 06290 07108*
07532* 07534* 07644 08446* 08591 08945 08958
GASTROINTESTINAL NEOPLASMS,VILLOUS
05618
GASTROINTESTINAL NOISES
06345
GASTROINTESTINAL OBSTRUCTION
00407 00925 00972 00975 00976 00982 01425 01467
01505* 01512 01710 01746 01753 01754 01756 01770
01789 01790 01811 02041 02178 02182 02561 02578
02916 02917 02984 03863* 04216 04525 04547* 05065
05814 06159 06324 06386 07606 08912 08961
GASTROINTESTINAL PATHOLOGY
00263 00266 00535 00967 01343 01745 01762 02547*
02585 02841 03322* 03351 03399 03642 03651 03911
04198* 04217 04252 04539 04561 05068 05072 05073
05445 05734 06290 06326 06367 06375 06379 06710*
06810 06881 07540 07582 07708 08463 08567
GASTROINTESTINAL PERFORATION
00972 01414 01727* 01753 01788 02549* 03110 03372
03694 04197* 04231 04241 04244 05031* 05706 06266
06353 08408
GASTROINTESTINAL PERFUSION
01052
GASTROINTESTINAL POLYPS
00462 02180 02551* 03911
GASTROINTESTINAL PROSTHESIS
00989
GASTROINTESTINAL RADIOLOGY
SEE ALSO GASTROINTESTINAL DIAGNOSIS
00240 00249 00268 00277 00280 00289 00293 00410
00467 00551 00552 00902* 00904 00923 00962 00967
00977 00992 01053 01075* 01077 01198* 01236 01260
01264 01341 01343 01412 01422 01446* 01756 01858*
02017* 02044 02178 02576 02596 02777 02778 02841
02846 02849 02855 02915 02916 02956 02986 03115
03322* 03363 03372 03630 03639 03642 03656 03659
03675 03676 03680 03717 03726 03727 03761 03865*
03866* 03872 03887 03893 03930 03956 03957 03990
03999 04055 04198* 04217 04234 04235 04236 04252
04559 04565 04570 04571 04626* 05415 05419 05420
05439 05460 05715 05814 06245 06250 06251 06358
06367 06387 06724 06736 06758 06763 06788 06884
06935 06956 07012* 07639 07646 07832 08024 08041
08048 08059 08446* 08567 08573 08587 08704 08851
08896* 08919 08960
GASTROINTESTINAL SECRETION
00977 01079 01187 01222 02666 02755 03522 04525
05159* 05430 06523 07736* 08020
GASTROINTESTINAL STRICTURE
08201
GASTROINTESTINAL SURGERY
SEE ALSO GASTROINTESTINAL TREATMENT
00523 00629* 00650 00673 00783 00883* 00891* 00901*
00901* 00904 00909 00910 00928 00957 00961 00976
00978 00996 01053 01099 01356* 01366 01767 01789
01790 01806 02178 02181 02543* 02551* 02552* 02600
02849 02916 02956 02986 02997 03324* 03325* 03338
03346 03382 03386 03393 03411 03695 03702 03807
03834 03892 03920* 03937 03951* 04196* 04213 04217
04238 04338* 04747 04783 05027* 05033* 05071 05086
05564 05647 05679 05695 05706 05792 05927 06235*
06265 06268 06269 06272 06308 06352 06368 06375
06387 06715* 06815 06823 06867* 06895 06900 06956
06984 07343 07591 07624 07644 07650 07693 07816
07971* 08161 08354 08512 08873 08895* 08959 08961
08965 08985
GASTROINTESTINAL TRACT
00043 02753 02755 02919 04312* 04517 04526 05159*
06319 06323 06324 07520*
GASTROINTESTINAL TRACT ANOMALIES
00350 02916 02917 04638
GASTROINTESTINAL TRACT BIOCHEMISTRY
05903*
GASTROINTESTINAL TRACT CIRCULATION
02370 02621*
GASTROINTESTINAL TRACT COMPLICATIONS
05592
GASTROINTESTINAL TRACT DEVELOPMENT
00989 01018* 01021* 07130 07802
GASTROINTESTINAL TRACT DIAGNOSIS
02127 08000*
GASTROINTESTINAL TRACT DISEASE EPIDEMIOLOGY
02613 06339 06808 07532*
GASTROINTESTINAL TRACT FISTULA
07520*
GASTROINTESTINAL TRACT HISTOLOGY
04249 05172 06225*
GASTROINTESTINAL TRACT IN CHILDREN
00278 00891* 00932 01368 01754 01765 01788 01789
01790 01798 01813 02041 02044 02076 02547* 02561
02562 02572 02573 02574 02577 02578 03326* 03346
03361 03630 04539 04561 07588 07609 07635 07649
07692 08174 08279 08429 08916 08960 08997
GASTROINTESTINAL TRACT MORPHOLOGY
01834 04288 06693
GASTROINTESTINAL TRACT MUCOSA
08891*
GASTROINTESTINAL TRACT PATHOLOGY
08891*
GASTROINTESTINAL TRACT SURGERY
07610
GASTROINTESTINAL TRACT,AGE EFFECTS ON
02589 04539 05026* 07984 08508
GASTROINTESTINAL TRACT,DISEASES ASSOCIATED WITH
02594 03339 03814 04762* 05243 05266 05453 06274
06290 06787 06835 07072 07589 07707 07708 08027
08519 08906 08911 08996

GASTROINTESTINAL TRACT,DRUG EFFECTS ON
00061* 00179* 00181* 00266 00280 00366* 00447 00461
00884* 00891* 00945 00955 00980 01003 01075* 01337
01482 01730* 01731* 01740 01741 01773 01786 01806
01807 01984 02020* 02235* 02543* 02604 02661 02664
02846 02969 03348 03363 03365 03383 03385 03398
03400 03432 03618* 03794* 03907 03929 03963 03997
04227 04246 04254 04284 04344 04370 04491* 04648
04827 04839 05048 05069 05087 05180 05370 05569
05686 06231* 06263 06292 06332 06342 06365 06383
06392 06469* 06501 06512 06513 06980 07537* 07549
07561 07566 07569 07576 07646 07750 07789 07806
08892* 08904 08964 08970 09022 09025 05178
GASTROINTESTINAL TRACT,DRUG TREATMENT OF
00028* 00359* 00402 00477* 00487 00673 00888* 00915
00926 00930 00950 00951 00959 00963 00964 00965
00970 00977 01330 01720* 01737 01743 01744 01755
01765 01773 01787 01791 01800 01801 01802 01976
02253* 02264 02548* 02558 02567 02577 02580 02581
02589 02606 02968 02999* 03000* 03001* 03048 03313*
03321* 03323* 03330 03345 03356 03357 03359 03360
03361 03363 03365 03366 03371 03374 03375 03394
03407 03422 03785 03822 03832 03997 04049 04214
04215 04225 04227 04247 04255 04258 04523 04608
04634 04648 04820 05049 05053 05069 05070 05073
05074 05077 05078 05079 05081 05491 05752 05842
06298 06299 06310 06360 06365 06366 06382 06811
07024 07186 07530* 07573 07597 07604 07605 07615
07632 07635 07749 08225 08384 08422 08454 08512
08556 08557 08558 08902 08907 08914 08916 08928
08957 08973 08978 09000 09001 09022 09028 08916
GASTROINTESTINAL TRACT,ELECTROLYTE METABOLISM IN
04349* 05372
GASTROINTESTINAL TRACT,ENZYME TREATMENT OF
00390 00898* 02117 02304* 02337 02472* 02914 04838
04839 06259 02334

GASTROINTESTINAL TRACT,FOREIGN BODIES IN
06337 07179 07624 08152 08156
GASTROINTESTINAL TRACT,HORMONAL CONTROL OF
00066 00927 00958 00960 01027 01076 01187 01190
02843 03917* 04211 05052 07837* 07843* 08958
GASTROINTESTINAL TRACT,HORMONAL TREATMENT OF
00476* 00534 00628* 00994 01414 01523 02448 05243
05752 08404*

GASTROINTESTINAL TRACT,NERVOUS CONTROL OF
00052* 00482* 00922 00941 00960 01018* 01083* 01421
02197* 02231 02568 02660 02661 03021 05073 07605
06314 06372

GASTROINTESTINAL TRACT,PHYSICAL TREATMENT OF
06248

GASTROINTESTINAL TRACT,TOXIC EFFECTS ON
00063* 00506 00979 01723* 01726* 01772 01786 02223
02664 02915 03323* 03348 03398 03400 03603* 03657
04254 05045 05172 05558 05569 06293 06298 06302
06342 06346 06372 06392 06450 06680 06702 06811
07562 07619 07708 08335* 08750 08904 08941
GASTROINTESTINAL TRANSPLANTATION
04604
GASTROINTESTINAL TRAUMA
00956 05647 06352 06867*
GASTROINTESTINAL TREATMENT
SEE ALSO GASTROINTESTINAL SURGERY
00390 00402 00477* 00487 00523 00673 00746 00760
00898* 00909 00915 00926 00930 00932 00959 00963
00964 00970 00977 00993 00996 01003 01337 01482
01721* 01731* 01743 01744 01765 01771 01787 01802
01976 02253* 02264 02558 02560 02562 02563 02564

GASTROINTESTINAL TREATMENT
CONTINUED
02566 02567 02577 02581 02589 02592 02606 02611
02617 02914 02915 02916 03345 03360 03361 03363
03365 03366 03367 03376 03382 03389 03394 04227
04233 04246 04255 04634 05069 05070 05074 05081
05373 05429 05510 05627 05706 06248 06320 06355
06360 06365 07576 07597 08997
GASTROINTESTINAL ULCERS
08517
GASTROINTESTINAL ULTRASTRUCTURE
00954 01034 01815* 02632 04287
GASTROINTESTINAL VOLVULUS
02572
GASTROINTESTINAL WATER METABOLISM
01143* 01326 01656 01939 02130 02592 02594 03362
05222
GASTROINTESTINAL,BIOCHEMICAL DIAGNOSIS OF
06759
GASTROSCOPY
SEE ALSO STOMACH ENDOSCOPY
04544* 06757 06862* 07001* 08054 08384
GASTROSTOMY
00400 00423 01919 02137 02925 03827 04238 06793*
06947 07050 08149 08174 08231 08274

GENETIC RELATIONSHIPS
SEE ALSO FAMILIAL DISEASES
00549 00954 01415 01548* 01653* 01658 01961 01993
02241 04056 04100 04111 04158 04412* 04720 05563
06015 06267 06827 08621* 05917*
GENETIC RELATIONSHIPS,BLOOD GROUP
00751 01304* 02100* 02196* 03045* 04362* 04719 05226*
05564 06996*
GIARDIASIS
04563 05041 05084 06339
GILBERTS DISEASE
00696* 01940 05130 08670
GLUCAGON
00009* 00106 00154 00740 01131* 01908* 01927* 04394
04402* 05224* 05265 05350 05362* 05907* 06035 06559
07810* 07840* 07862* 08015
GLUCLOSE ABSORPTION
02706*
GLUCONEOGENESIS
04436
GLUCOSE
00009* 01830 01850* 01928* 03504* 03542* 03545* 03547*
04187 04961* 05221 06574* 06596* 07853* 08158
GLUCOSE ABSORPTION
00034* 00040 01052 01060 01190 01433 01849* 02024*
02235* 02352* 02378 02668 02815 02827 03423 03485*
03966 04063 04309* 04317* 04748* 05052 05090* 05142
05154* 05180 05730 06226* 06481* 06499 06522 06640
06670* 07062* 07067* 07424* 07803 07806 07808 07875
GLUCOSE METABOLISM
01965 04349* 04454 05239 07457 07910 08793
GLUCOSE METABOLISM,LIVER
01927* 02713 02714 06601 07895* 07958*

GLYCOGEN
00009*
GLYCOGEN METABOLISM,LIVER
07893*
GLYCOGEN STORAGE DISEASE
00021 00729 00740 00749 00836 02384 02385 02712
02765* 02771 04821 04883 05332 07741 08632*
GLYCOGEN,LIVER
00016* 00142 00154 00174 00700* 00749 01149* 01929*
01958 02700* 02704* 02706* 02727 03542* 03545* 03556*
04248 04402* 04405* 04424* 04449 04454 04468 04883
05089* 05107* 05283* 05285* 05299* 05303 05340 05907*
05930 05969 05998 06024 06032 06052* 06410* 06569*
06574* 06575* 06587* 06592* 06618 06633 06650 07755
07881* 07895* 07939 08634* 08647 08731*
GLYCOLIPIDS
01020*
GLYCOPROTEINS
00129* 00271 00366* 01116 01494* 01992 03501* 03517*
04348* 06577* 06669* 07851*
GNOTOBIOSIS
00028* 01185* 03606 03607 05366* 06491 06694 07729*
08966
GOBLET CELLS
01178*
GRANULOMA
05524 05544 05779 06928 08224
GRANULOMATOUS COLITIS
SEE CROHNS DISEASE OF COLON
GRAVITATIONAL STRESS
00314*
GREATER OMENTUM
06287 06458 08931

HAMARTOMA
04771
HAPATITIS,AGE FACTORS IN
05931
HEALING,WOUND
00564* 00891* 00928 01805
HEIDENHAIN POUCH STUDIES
00071* 00080* 01082* 01083* 01091* 01101 01108 01117*
01875* 01877* 01879* 01887* 01890* 02669* 02680* 02684*
02741* 02964* 03508* 03514* 03516* 03517* 03928* 04364*
04366* 04484* 05161* 05234* 05595* 06468* 06508* 06532*
07842* 07843* 07844* 07852* 07854* 07857* 08325*
05160* 05229* 06529*

HEMANGIOMA
00551 00727 01762 02965 02976 03664 05541 06014
HEMATEMESIS
00933 00980 03652 04601* 04625* 05026* 05484 05485
05582 05647 06839 07534* 07655 08135* 08900
HEMATOLOGY
01959 05986
HEMATOMA
00733 00738 02969 06318 07611
HEMOBILIA
SEE ALSO BILIARY TRACT
00725 01709 04925
HEMOCHROMATOSIS
01047* 02358 02405 03161* 03208 04100 04106 04562
05961 07433 07437 08665 08707 08820
HEMODIALYSIS
01582
HEMOGLOBIN
05983
HEMOGLOBIN METABOLISM
00132*
HEMOLYTIC ANEMIA
00200* 00805 01564 01618 01940 02367 02437 02481
04140 04959 05128 05212 06080 06083 06094* 06464*
06875 07449 08027
HEMOLYTIC JAUNDICE
00762
HEMORRHAGE
SEE ALSO BLEEDING
05159* 06235* 08069* 08594*
HEMORRHAGIC ENTEROPATHY
00456 08245*
HEMORRHAGIC PANCREATITIS
01527 01530 02327 02329 04066* 04075 08599* 08610
HEMORRHAGIC RECTOCOLITIS
05833* 07193
HEMORRHOIDS
00623 01477 01489 02256* 02276 02292 03067* 03088
03101 03108 03698 04001 04340 04767 04774 04788
05806 05807 05833* 07109 07116 07145 07159 08504
08514 05786

HEMOSIDEROSIS
02663* 03161* 03208 04562 05168 07234*
HEPACTECTOMY
05956
HEPARIN
01963
HEPATECTOMY
SEE ALSO LIVER REGENERATION
00110* 00125* 00144 00145 00159 00677* 00680* 00681*
00684* 00685* 00702* 00753 01118* 01123* 01142* 01162
01167 01172 01546* 01620 01621 01930* 01936 01950
02369 02419* 02447 02556 02727 02730 03155* 03163*
03164* 03169* 03314* 03556* 03558 03559 03560 03561
03562 03569 03570 03571 03572 04096 04119 04293
04300 04350 04434* 04438 04441 04465 04890 04899
05109* 05301 05312 05327 05330 05332 05346 05922*
05975 05977 06023 06052* 06068 06419 06420 06576*
06608 06630 06631 06647 06651 06665 07279 07308
07344 07350 07656 07721* 07742 07804 07880* 07905
07915 07936 07942 07946 08622* 08666 08727 08736
HEPATIC COMA
SEE ALSO LIVER COMA
04087*
HEPATIC ENCEPHALOPATHY
00714 00822* 00835 00958 01540* 01547* 01589 01590
01603 01654* 01670 02003* 02342* 02355 02362 02592
04104 04607 05921* 06029 06096* 08733*
HEPATIC VEIN THROMBOSIS
SEE BUDD-CHIARI SYNDROME
HEPATITIS
SEE ALSO JAUNDICE
SEE ALSO LIVER
SEE ALSO LIVER COMA
00732 01534* 01940 03200 03470 03534* 03637 04087*
04120 04149 04159 04545* 04623* 04878* 06012 06108
06128* 06187 06473* 07348 07990* 08634* 08669 08677

HEPATITIS
CONTINUED
08799 08828*
HEPATITIS COMPLICATIONS
01636 02356 02426 02432 02437 02438 02455* 02456*
02466 02812 03250 04104 04865* 05949 07315 07394*
07395*
HEPATITIS COMPLICATIONS,VIRAL
02452* 02476* 03232* 03260* 04910 06084 07391* 07397
07413 07414 07452 08762 08754*

HEPATITIS DIAGNOSIS
00222* 00223* 00245 00246 00291 00294 01225 01242
01579 01623 02000* 02004* 02010* 02030* 02050 02050
02421* 02441 02812 02829 02851 03217* 03221* 03225
03243 03613* 03617* 03654 03668 03690 04094* 04123
04562 04572 04879* 04924* 04933 05099* 05131 05174
05323 05927 05947 05974 07246* 07274 07276 07287
07296 07307 07315 07367* 07398 07404 07435 07436
HEPATITIS DIAGNOSIS,VIRAL
00201* 00202* 00232* 00259 00279 00803 00806 00807
00811 01209* 01218* 01221 01534* 01604 01628* 01631
01643 01644 02461 02466 02467 03233* 03235* 03459*
03468* 03633 03643 03666 03706 04135* 04139* 04145
04557* 04945* 04948 05404* 05409 05425 06040 06088
06747 06769 07256* 07392* 07393* 07400 07401 07407
07410 07412 07419 07992* 08008* 08012 08044 08627*
08751* 08752* 08756* 08758 08768
HEPATITIS EPIDEMIOLOGY
00811 02898* 03243 03244 03252 06072* 06078* 07254*
08368
HEPATITIS EPIDEMIOLOGY,VIRAL
00794* 00795* 00796 00797 00804 00809 00810 00812
00814 01221 01626* 01629* 01631 02461 02462 02463
02464 02467 03239* 03241 03247 03252 03253 03254
03256 03643 04136* 04143 04146 04153* 04945* 04947*
04948 04954 06029 06078* 06085 06086 06088 07311
07400 07405 08627* 08757 08758 08760 08761 08767
08771 07398

HEPATITIS ETIOLOGY
00779* 00780 00800 00810 00811 00816 01534* 01563
01600 01611 01612 01616 01628* 01629* 01641 02438
02455* 02457* 02464 03156* 03158* 03239* 03668 04130
04273* 04303 04928 05174 07254* 07287 07289 07374
07389* 08693
HEPATITIS ETIOLOGY,VIRAL
00797 03451* 06082 06091 06587* 07263 07356 07392*
07411 07422 07720* 07722* 08766 08769
HEPATITIS IMMUNOLOGY
00211* 00710 01534* 01579 02018* 02019* 04273* 05095*
05999 06043 07254* 07287 07399 07733* 08693 08697
08764
HEPATITIS IMMUNOLOGY,VIRAL
00793* 00794* 00800 00804 00806 00816 01535* 01552*
01626* 01628* 01644 03240* 03241 03451* 03459* 03649
04134* 04273* 04945* 04948 04950 05095* 05409 06082
06091 07244* 07247* 07389* 07402 07409 07720* 07722*
08627* 08764 08771
HEPATITIS IN CHILDREN
00879 01545* 01548* 01553* 02459* 03158* 03225 03243
03244 04933 04959 06071 06075* 08651
HEPATITIS IN CHILDREN,SERUM
00775*
HEPATITIS IN CHILDREN,VIRAL
00792* 00796 00799 01626* 01639 01640 01641 01778
02453* 03245 04557* 04906 04950 04953 05950 07390*
07403 07415 07420 07421 08012 08751* 08769 08770
08771 08773 08776 08778 08956
HEPATITIS IN PREGNANCY
03254 04956 04957
HEPATITIS PATHOLOGY
00697* 01534* 01563 01642 02356 02426 02466 03156*
03217* 03243 03255 04130 05044 06043 07262 07276
07289 07398 08641*
HEPATITIS PATHOLOGY,VIRAL
00698* 00801 00811 01635 01643 02342* 02457* 02458*
03232* 03247 03249 03263* 04135* 04145 04272* 04303
04953 04958 05114* 06087 07393* 07413 07422 08722
08752* 08756* 08764 08779
HEPATITIS PROPHYLAXIS
01623 08758
HEPATITIS PROPHYLAXIS,VIRAL
00795* 00797 00810 00812 00813 00814 01626* 01629*
01645 02461 02462 02463 02464 02467 02814 03254
03256 04139* 04146 04147 04945* 04948 04955 06073*
06085 06086 07409 08761 08767 08771
HEPATITIS TREATMENT
00722 00724 00737 00739 00745 00779* 00840 01538*
01542* 01543* 01562 01578 01579 01623 01634 01642
02341* 02356 02386 02389 02423 02439 02441 03244
04123 04142 04879* 04923 04928 04944* 05965 06060
06073* 06075* 07261 07289 07339 07394* 07395* 08641*
08645 08651 08688 08695 08723
HEPATITIS TREATMENT,VIRAL
00792* 00797 00798 00799 00803 00808 00812 00813
00814 00815 01625* 01627* 01630* 01632 01637 01640
01645 01721* 02363 02468 03237* 03248 03254 03255
04147 04148 06073* 06084 06087 06088 07321 07405
07406 07408 07416 08763 08765 08769 08755*

HEPATITIS,ACUTE
00213* 00250 00294 00701* 00722 00757 01551* 01627*
01634 01635 01642 01645 01648* 02008* 02012* 02019*
02453* 02481 03221* 03232* 03244 03451* 03706 04130
04141 04929 04942 05105* 05323 05965 05980 05988
06060 06062 06118 07246* 07252* 07257* 07292 07663
08641* 08645 08673
HEPATITIS,ACUTE VIRAL
00232* 00792* 00793* 00800 00808 01221 01642 02356
02452* 02460* 02468 02787 03240* 04140 04147 04562
05131 07391* 07394* 07395* 07411 07417 07452 08752*
08753* 08779
HEPATITIS,AGE FACTORS IN
00792* 00794* 00796 02453* 02454* 02462 07254* 08368
HEPATITIS,ANICTERIC
04904 04953 08751*
HEPATITIS,BIOCHEMICAL DIAGNOSIS OF
01206* 02438 03633 04135* 04145 04944* 07289 08770
HEPATITIS,CHRONIC
00211* 00709* 00710 00714 00739 00801 01206* 01225
01494* 01538* 01542* 01551* 01563 01578 01581 01627*
01633 01635 01640 01644 02014* 02019* 02341* 02344*
02387 02394 02421* 02440 02441 02444 02455* 02456*
02460* 02787 03217* 03236* 03247 03248 03252 03608*
03666 03706 04141 04554* 04572 04879* 04904 04906
04951 04952 04959 05404* 05965 05980 06043 06071
06074* 06075* 06111 06113 06121 07251* 07261 07262
07263 07276 07287 07289 07307 07315 07345 07377
07391* 07395* 07399 07417 07425* 07441 07900* 08018
08663 08688 08693 08697 08753* 08777
HEPATITIS,CHRONIC VIRAL
03262* 03263* 04148 04562 04951 04952
HEPATITIS,CIRCULATION IN
01636 02344* 02356 04135*
HEPATITIS,CLINICAL STUDIES OF
02454* 07414
HEPATITIS,DISEASES ASSOCIATED WITH
00714 01562 01563 02097* 02437 02455* 03262* 03263*
04148 06074* 06075* 06913 07339 07395* 08631* 08753*
08762
HEPATITIS,DISEASES ASSOCIATED WITH VIRAL
00746 00801 00802 00809 01225 01632 01633 02458*
03234* 03238* 03248 04123 04910 04950 05409 06076*
07403 07494 08768 06080

HEPATITIS,EXPERIMENTAL
07422 08774
HEPATITIS,EXPERIMENTAL STUDIES OF
03246 04949

HEPATITIS,LÜPOID
01562 01563 01579 02389 02439 02441 02811 06033
06081 06095* 07287 07373 07733* 08693 08695
HEPATITIS,METABOLIC CHANGES IN
01206* 01538* 01648* 01922* 01976 02004* 02014* 02019*
02342* 02382 02387 02452* 02453* 02460* 02485 02812
03178 03235* 03236* 03249 03633 04137* 05425 08776
HEPATITIS,MICROORGANISMS IN
00813 01641
HEPATITIS,SERUM
00250 00795* 00797 00806 00811 00816 01629* 01645
02455* 02814 03256 03451* 04097 04134* 04143 04273*
04303 06078* 06082 07263 07274 07277 07398 07407
07414 08733* 08751* 08753*
HEPATITIS,TOXIC
SEE ALSO TOXIC EFFECTS ON LIVER
04496*
HEPATITIS,VIRAL
00805 01559 01563 01636 01638 02455* 02465 02466
02469 02622* 03157* 03166* 03203 03211 03234* 03245
03250 03251 03255 03257 03441 04080* 04097 04108
04113 04138* 04139* 04141 04142 04144 04272* 04275*
04946* 04949 04956 04957 05119 05916* 05926* 05931
05936 05981 06006 06057 06070 06075* 06079* 06081
06083 06090 06150 07201 07261 07339 07351 07396
07399 07404 07418 07445 08368 08623* 08668 08755
08772 08777 08780
HEPATOLENTICULAR DEGENERATION
00688* 00707* 02368 02411 02697* 04101 04866* 04877*
04886 05115* 05903* 05951 06047 07267 07304 07318
07319 07462 07783* 07899* 08621* 08637*
HEPATOMA
01978 02443 02634 03198 03214 03585 03586 04105
04108 04117 04153* 04210 04431* 04478 04862* 04976
05147 05349 05972 05996 06429 07275 07325 07921
07922 08629* 08727 08739

HEPATOMEGALY
00232* 00726 00730 00749 00801 00840 00992 01009*
01196* 01200* 01455 01770 01958 02400 02821 02852
03170* 03277 04130 04149 04210 04871* 04896 05332
06045 06048 06054* 06110 06276 07286 08676 08696
08725
HEPATOSPLENOMEGALY
00705* 01351* 04260 04583 04834 05927 06024 06917
07348 07371* 07622 07652 08014 08655 08710
HERNIA
SEE ALSO DIAPHRAGM HERNIA
00425 00454 00972 01481 02588 03086 03180 03347
03401 03883 03893 04032 04221 04547* 05075 05506
05510 05624 05631 05642 05648 05762 05777 05809
05814 06282 06368 06980 06982 07324 08257* 08282
08292 08313 08322 08472 08495 08830* 08908 08986
HERNIA IN CHILDREN
01290 02561 03076* 03346 03435 05066 05496 06262
06313 06363 07971*
HERNIA,ABDOMEN
00939
HERNIA,DIAPHRAGM
00254 00323 00326 00352 00936 01246 01281 01288
02068 02069 02072 02076 02863* 02874 02895 03435
03758 03760 03761 03768 03785 03847 05066 05562
05778 06196 06285 06286 06313 06331 07539 07971*
08110 08938 08967 08991 09007
HERNIA,DISEASES ASSOCIATED WITH HIATUS
00317*

HERNIA,HIATUS
00085* 00230* 00247 00250 00296 00308* 00309* 00310*
00315* 00316* 00317* 00323 00325 00326 00330 00335
00340 00344 00350 00377 00947 00980 01003 01035
01260 01272* 01274* 01276* 01277* 01280* 01281 01282
01286 01287 01288 01290 01294 01299 01300 01333
02076 02084 02090 02093 02096 02112 02119 02599
02761* 02857 02867* 02870* 02874 02875 03006* 03364
03652 03673 03709 03727 03734* 03737* 03739* 03740*
03745 03754 03755 03757 03758 03761 03764 03765
03767 03768 03771 03772 03788 03792 03819 03830
03842 03941 04598* 04600* 04601* 04603 04740 05026*
05149 05472* 05486 05491 05496 05500 05507 05609
05778 05927 06196 06350 06765 06790* 06793* 06794*
06799* 06808 06810 06815 06817 06819 06822 06826
06831 06837 06840 06852 06855 08063* 08067* 08074*
08076* 08079* 08085 08092 08094 08097 08108 08111
08112 08113 08114 08115 08116 08117 08118 08119
08129 08446* 08946 08987 05469*
HERNIA,INGUINAL
00407 00553 00978 07105*
HERNIA,LIVER
00254
HERNIA,OBDURATOR
01746

HIATUS HERNIA
00085* 00230* 00247 00250 00296 00308* 00309* 00310*
00315* 00316* 00317* 00323 00325 00326 00330 00335
00340 00344 00350 00377 00947 00980 01003 01035
01260 01272* 01274* 01276* 01277* 01280* 01281 01282
01286 01287 01288 01290 01294 01299 01300 01333
02076 02084 02090 02093 02096 02112 02119 02599
02761* 02857 02867* 02870* 02874 02875 03006* 03364
03652 03673 03709 03727 03734* 03737* 03739* 03740*
03745 03754 03755 03757 03758 03761 03764 03765
03767 03768 03771 03772 03788 03792 03819 03830
03842 03941 04598* 04600* 04601* 04603 04740 05026*
05149 05472* 05486 05491 05496 05500 05507 05609
05778 05927 06196 06350 06765 06790* 06793* 06794*
06799* 06808 06810 06815 06817 06819 06822 06826
06831 06837 06840 06852 06855 08063* 08067* 08074*
08076* 08079* 08085 08092 08094 08097 08108 08111
08112 08113 08114 08115 08116 08117 08118 08119
08129 08446* 08946 08987 05469*
HIATUS HERNIA,DISEASES ASSOCIATED WITH
00317*
HIRSCHPRUNGS DISEASE
05746* 05748 07118 07123 07134
HIRSCHSPRUNGS DISEASE
00603 00619 00626 01456 02287 03069* 03100 03346
03983 03999 04011 04778 04790 04806 05399* 05743*
05816 07113 07154 07156 08465 08466 08482
HISTAMINE
00007* 00050* 00055* 00056* 00066 00067* 00071* 00072*
00073* 00078* 00079* 00081* 00082* 00093 00119* 00179*
00196* 00221* 00237* 00364* 00496 00902* 00958 00982
01027 01091* 01093* 01097* 01098 01104 01108 01202*
01249 01306* 01389* 01401 01403 01416 01682 01879*
01886* 01887* 01889* 01890* 01891* 01892* 01895* 01896*
01899 02033* 02051 02189* 02211 02323* 02324* 02468
02485 02542* 02629* 02669* 02671* 02672* 02674* 02675*
02676* 02678* 02679* 02683* 02690 02780 02818 03015*
03504* 03507* 03510* 03511* 03513* 03514* 03515* 03516*

HISTAMINE
CONTINUED
03517* 04344 04359* 04360* 04362* 04384 04484* 04486*
04491* 04495* 04550* 04556* 04737 05144 05229* 05231*
05238* 05245 05247 05381* 05398* 05416 05662* 05881*
06259 06408* 06468* 06529* 06530* 06536* 06537* 06543
06548 06617 06733 06766 07013* 07527* 07724* 07774
07829* 07834* 07835* 07841* 07845* 07846* 07847* 07849*
07852* 07853* 07855* 07860 07959* 07996* 08135* 08226
08598*
HODGKINS DISEASE
00384 00511 00809 00967 01332 02830 02852 02866*
03050 06236* 06880
HORMONAL CONTROL OF ABSORPTION
01063 01064 03959* 04325
HORMONAL CONTROL OF CIRCULATION
01191
HORMONAL CONTROL OF GALLBLADDER
00053* 00994 01065 05171 05280* 06143 07273 07885*
HORMONAL CONTROL OF GASTROINTESTINAL TRACT
00066 00927 00958 00960 01027 01076 01187 01190
02843 03917* 04211 05052 07837* 07843* 08958
HORMONAL CONTROL OF LARGE INTESTINE
00994 01860* 06559 07995*
HORMONAL CONTROL OF LIVER
00016* 00111* 00114* 00116* 00130* 00137* 00154 00162
00170 00692* 00740 00777* 00789 00825* 00899* 01117*
01122* 01125* 01128* 01129* 01131* 01132* 01134* 01136*
01139* 01140* 01141* 01147* 01155 01157 01164 01168
01170 01175 01610 01614 01927* 01974 01975 01979
02601 02695* 03237* 03546* 03565 03582 04323* 04410*
04442 04443 04452 04460 04462 04498* 04883 04893
04903 04961* 05285* 05288* 05294* 05305 05306 05339
05342 05965 06052* 06433 06590* 06596* 06619 06634
07378 07928 07958* 07258
HORMONAL CONTROL OF MOTILITY
00017 00048* 00050* 00051* 01071* 01190 01316* 03844
05189*
HORMONAL CONTROL OF PANCREAS
00096* 00099* 00101* 00102* 00104* 00106 00107 00288
00642* 01087* 01102 01109* 01110* 01115 01411 01528
01908* 01911* 01912* 02662* 03677 04074 04394 04396
04522 05258* 05270 05271 05876 05880 06398* 06550*
06551* 06559 07223 07867* 07870
HORMONAL CONTROL OF PEPTIC ULCERS
00476* 03030 06387
HORMONAL CONTROL OF SECRETION
06550* 06551*
HORMONAL CONTROL OF SMALL INTESTINE
00017 01008* 01022* 01063 01190 01860* 03482* 03490*
04522 05189* 05362* 06493 06559 07885* 08061
HORMONAL CONTROL OF STOMACH
00367* 00478* 00489 00504 01821* 01869* 02629* 03005*
03030 03522 03524 03839 04326 05231* 06408* 06534*
07837* 08061
HORMONAL CONTROL OF STOMACH ACID SECRETION
01896* 07853*
HORMONAL CONTROL OF STOMACH SECRETION
00067* 00071* 00073* 00078* 00079* 00080* 00082* 00085*
00086* 00089 00104* 00192 00496 01081* 01086* 01087*
01088* 01090* 01097* 01098 01101 01102 01103 01104
01108 01202* 01316* 01405 01406 01528 01752 01775
01879* 01880* 01883* 01885* 01886* 01887* 01889* 01890*
01891* 01894* 01895* 01897* 01901 01904 02031* 02033*
02055 02542* 02669* 02672* 02676* 02678* 02679* 02683*
02684* 02690 02818 03002* 03019 03439 03504* 03506*
03508* 03511* 03513* 03518* 03940 03942 03943 04229
04357* 04368 04374 04375 04376 04378 05190* 05243
05252 05582 06546 07845* 07854* 07869* 08061 08226
HORMONAL CONTROL OF THE PANCREAS
07872

HORMONAL TREATMENT OF GASTROINTESTINAL TRACT
00476* 00534 00628* 00994 01414 01523 02448 05243
05752 08404*
HORMONAL TREATMENT OF LIVER
00789 00815 05936 07283

HORMONE METABOLISM
01172
HORMONES,PANCREAS
00893* 01190 01411 03942 04522 06556 06596* 07208
07526* 07862*

HYPERCALCEMIA
02559 02579

HYPERCHLORHYDRIA
00083* 00221* 00316* 00402 00911 01405 01883* 02201
02343* 03023 05513* 06859* 08226
HYPERGLYCEMIA
07222 08015
HYPERLIPEMIA
00671
HYPERPLASIA
02422
HYPERTENSION DIAGNOSIS,PORTAL
00204* 00223* 00245 00699* 00711 02821 02831 03738*
04115 04117 06041 07430* 08658 08689 08704
HYPERTENSION DIAGNOSIS,RADIOLOGY IN PORTAL
00204* 05448
HYPERTENSION ETIOLOGY,PORTAL
00699* 00708* 00711 02401 03286* 03448* 03738* 04388*
04535 04607 04860* 04867* 05381* 05929 07347
HYPERTENSION IN CHILDREN,PORTAL
00708* 04110 04115 04914 05448 05449 05970 06039
07305 08704 08812
HYPERTENSION PATHOLOGY,PORTAL
00711 03266 06796* 07426*
HYPERTENSION SURGERY,PORTAL
02350* 05924* 06041 06917 08657
HYPERTENSION TREATMENT,PORTACAVAL SHUNT IN PORTAL
03286*
HYPERTENSION TREATMENT,PORTAL
00204* 00312* 00699* 00708* 00711 00755 00822* 00823*
00827* 01291 01587 01652* 01658 01667 01673 02066*
02350* 02371 02373 02471* 02478 02487 02848 02885
03258* 03268 03286* 03738* 04160 04607 04860* 04867*
04965* 04970 04972 05487 05489 05924* 05952 05970
05995 06017 06039 06124 06844 07029 07328 07335
07341 08647 08657 08658 08689 08781* 08789 08791
08798 08803 08815
HYPERTHERMIA
01893*
HYPERTROPHY
00385 00398 00403 00412 00551 01309* 01325 01365
01508 01665 02575 03568 03570 03757 03820 04271*
05820 05875 06909 08228
HYPERTROPHY,SALIVARY GLAND
02583
HYPOCHLORHYDRIA
00221* 01334 01883* 02100* 02117 04082* 04656 05241
03023

HYPOGLYCEMIA
02384 06035 06222
HYPOTHALAMUS
03010* 05252
HYPOTHERMIA
SEE ALSO COOLING TREATMENT OF BLEEDING
00134* 00469 00700* 00753 00788 00982 01504* 01510
01586 01593 02429 05148 05348 05543 05891 05892
06439 06592* 07221 07986
HYPOXIA
00072* 00694* 01636 04293

ICTERUS
SEE JAUNDICE

ILEITIS
01500 04746
ILEITIS,REGIONAL
00445 00525 01349* 02229 02230 02231 03955 05650
06994 08405 08406 08551
ILEOCECAL VALVE
00442 00445 01349* 01354* 02064* 03880 04694 06984
07813* 07814*
ILEOSTOMY
01804 03085 05835 05836 06334 08293
ILEOSTOMY COMPLICATIONS
00636 05603*
ILEUM
SEE ALSO SMALL INTESTINE
00056* 00060 00185* 00249 00256 00432* 00434* 00436*
00459 01005* 01016* 01048* 01068* 01097* 01176* 01362
01371 01372 01374 01425 01727* 01840* 01858* 01860*
02153 02165 02167 02173 02234 02283 02289 02596
02653* 02658 02764* 02967 02968 02969 02970 02990
03085 03115 03121 03140 03338 03377 03436 03598
03629 03814 03873 03875 03903 03908 03914 03955
04045 04197* 04209* 04212 04335 04483* 04490* 04680
04694 04706 05160* 05162* 05163* 05598* 05599* 05640
05764 05801 05844 06397* 06399* 06471* 06479* 06667*
06949 06976 07506 07525* 07751 07795 07968 07985
08247* 08250* 08282 08288 08433*
ILEUM HISTOLOGY
01815*

ILEUS
SEE ALSO LARGE INTESTINE OBSTRUCTION
SEE ALSO SMALL INTESTINE OBSTRUCTION
00397 00437* 00439* 00457 00524 00617 00856 00880
00895* 00961 00971 00982 01001 01002 01240 01355*
01366 01367 01368 01378 01479 01707 01751 01769
01789 01790 02145* 02164 02178 02541* 02742* 02965
02979 02984 03109 03140 03141 03339 03413 03434
03638 03818 03868* 03869* 03893 03901 03910 03912
04050 04061 04679 04682 04698 04993 05047 05601*
05623 05629 05777 05875 06159 06352 06372 07134
07154 07637 07665 08321 08532 08838
ILEUS,BILIARY
01710 02516 06139* 06946*
ILEUS,MECONIUM
04838

IMMUNE REACTIONS
SEE ALSO MICROORGANISMS
00631 00919 00946 01021* 01563 01611 01612 01628*
01658 03240* 03387 03390 03649 07731*

IMMUNOGLOBULINS
00211* 00291 00294 00297 00357* 00457 00464 00540
00787 00800 00812 00813 00814 00816 00817* 00903*
01114 01370 01429* 01432 01535* 01584 01604 01628*
01629* 01658 01664 01764 01988* 02018* 02019* 02045
02239* 02241 02387 02393 02440 02456* 02484 02545*
02546* 02787 02810 02811 02812 03004* 03042* 03054
03124 03256 03333 03387 03421 03476 03669 03804
04047 04144 04146 04232 04278* 04279* 04700 04981*
05704 05728 05980 06095* 06098* 07075 07257* 07409
07687 07731* 08640* 08697 08751* 08780
IMMUNOLOGY
SEE ALSO MICROORGANISMS
00092 01499 02716 02731 02825 03326* 03399 03427
03437 03440 04975 05374 05917* 06119 06227* 06373
06525 06570* 06783 06887 07163 07275 07585 07670
07672 07689 07740 07765 08768
IMMUNOLOGY IN CIRRHOSIS
00211* 00710 00824* 01552* 02476* 06107 07733* 08788*
IMMUNOLOGY IN ULCERATIVE COLITIS
05741* 07098*
IMMUNOSUPPRESSION
02389 02439 03182 03387 04269* 04428* 04822 04824
05096* 05377* 05955 05962 06586* 07918 06081

INFARCTION
SEE ALSO CARDIOVASCULAR SYSTEM
00405 00461 00880 01218* 02478 02572 02790 03706
04233 05654 06977 07167
INFECTIONS,ABDOMEN
SEE ALSO PERITONITIS
00741 00765* 00896* 00952 00975 00983 00997 01245
01607* 01753 03110 03293 03401 03419 03992 04024
04193* 04248 04249 04690 05056 05076 05394* 06327
07100* 08462 08894* 05931

INFILTRATION,CELLULAR
00396 01032 01424 04272* 04418* 04425* 05100* 06232*
INFLAMMATION
00224* 00298 00343 00396 00523 00623 00675 00703*
01433 01469 01479 01486 01492* 01499 01674 01680*
01700 01764 01778 01804 01871 02164 02401 02597
02716 02826 03094 03128* 03312 03433 03706 03836
03875 03877 03900 03956 03997 03998 04252 04590
04819 04820 05085 05504 05640 05813 05814 05816
05818 05819 06185 06186 06212 06215 06375 07116
07125 07142 07151 09016
INGUINAL HERNIA
00407 00553 00978 07105*
INHIBITOR SECRETION,PANCREAS TRYPSIN
01906*

INJURY,LIVER
06575*
INMALABSORPTION DIAGNOSIS,D XYLOSE
05602*

INSTRUMENTS
00227* 00230* 00242 00284 00296 00595 00597 00961
01193* 01592 01716 01747 02026* 02263 02557 02600
02760* 02772 02779 02949 03624 03636 03645 03660
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05898 06133* 06188 06991 07640 07696
INSTRUMENTS,SURGICAL
08204
INSULIN
00009* 00034* 00073* 00078* 00082* 00106 00117* 00469*
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INTOLERANCE,MILK
00748 00919 01436 01440 01444 01745 02107* 02238*
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05558
INTOLERANCE,SUGAR
00538 01436 01754 02250 03720 03966 05024* 05730
06673
INTRINSIC FACTOR
01847* 02247 03839 04358* 05153 05160* 06864* 06887
INTRINSIC FACTOR ANTIBODY
00357* 01884* 02109 05521*
INTRINSIC FACTOR,STOMACH
00088 00365* 00393 01327 01852 02015* 02109 02645
02676* 04324* 04352* 05093* 05094* 05161* 05226* 05521*
05526 06465* 06471* 06866* 07959*
INTUSSUSCEPTION
00249 00452 00588 00890* 00950 01355* 01386 01512
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ION TRANSPORT
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05230* 05719* 06413* 06479* 07776* 07780* 07781* 07808
IRON ABSORPTION
00037 00044 00887* 01047* 01048* 01053 01843* 01854
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IRON DEFICIENCY
05360*

IRON EXCRETION
06496
IRON METABOLISM
01442 02191* 05268 06488 06836 07234*
IRON METABOLISM,LIVER
00132* 00997 01175 02000* 02391 02405 02663* 03161*
03209 03486* 03541* 03716 04100 04106 04960* 05174
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07437 07943 08023 08665 08707
IRON STORAGE DISEASES
08707
IRON=DEFICIENCY ANEMIA
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IRON,SERUM
00044 00494 02405 04861* 06495
IRRADIATION,TOXIC EFFECTS OF
07520*
IRRITABLE COLON
00293 00610 00963 00977 01070* 01482 02565 03705
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ISCHEMIA
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06561 07157 08245*
JAUNDICE
00190 00660 00683* 00711 00814 00837 00848* 00874
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03250 03255 03275 03278 03534* 04083* 04091* 04141
04878* 04922 04941 04958 05001 05011 05110* 05383
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JAUNDICE DIAGNOSIS
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JAUNDICE DIAGNOSIS,RADIOLOGY IN
03707 08001*
JAUNDICE EPIDEMIOLOGY
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JAUNDICE ETIOLOGY
00213* 00690* 00692* 00731 00748 00756 00772* 00774*
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JAUNDICE IN CHILDREN
00705* 00775* 01597 01598 02367 04953 05985 06036
06153 06203
JAUNDICE PATHOLOGY
00721 02361 02413 02493 03158* 03181 03194 03215
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JAUNDICE SYNDROMES
00565* 00621 00690* 00692* 00696* 00697* 00705* 00758
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JAUNDICE TREATMENT
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07283 07652 08648 08653 08679 08682 08763
JAUNDICE,BIOCHEMICAL DIAGNOSIS OF
00201* 00213* 03667 05173 05298* 06159 07236* 07992*
JAUNDICE,CIRCULATION IN
01713
JAUNDICE,CLINICAL STUDIES OF
04744 05919*
JAUNDICE,DISEASES ASSOCIATED WITH
00690* 01571 02308 02380 03195 05016 06031 06121
06159 06223 06359 07296 07384 08653 08719
JAUNDICE,HEMOLYTIC
00762
JAUNDICE,MICROORGANISMS IN
05944
JAUNDICE,NEONATAL
00116* 00178* 00200* 00301 00748 00758 00972 01537*
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08619* 08630* 08682 08828*
JAUNDICE,OBSTRUCTIVE
00213* 00283 00301 00444 00467 00676 00698* 00703*
00721 00736 00756 00787 00798 00807 00852 00869
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06184 06187 06196 06199 06200 06201 06202 06203
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07451 07475 07509 07510 07511 08646 08656 08706
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JAUNDICE,SERUM BILE PIGMENTS IN
00163 00680* 00762 00787 01168 01203* 02361 03177
03184 04425* 05913* 05974 06589* 07333

JEJUNUM
SEE ALSO ABSORPTION
SEE ALSO REGIONAL ENTERITIS
SEE ALSO SMALL INTESTINE
00012* 00039 00430* 00431* 00432* 00440* 00448 00453
00468* 00524 00530* 00646 00864 00869 00916 01016*
01044* 01048* 01097* 01353* 01386 01840* 01841* 01859*
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03423 03425 03436 03460* 03488* 03594* 03598 03627
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03899 03906 03938 04191* 04197* 04309* 04712* 04754
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08250* 08281 08283

KERNICTERUS
00178* 00200* 00758 01564
KIDNEY
00001* 00081* 00086* 00126* 00129* 00209* 00228* 00629*
00668* 00790 00805 00843 00902* 00927 01023* 01164
01186 01237 01547* 01582 01654* 01656 01805 01935
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03615* 03965 04248 04292 04971 05101* 06020 06064
06171 06281 06333 06372 06434 06490 06636 07217
07293 07584 07871 08846
KIDNEY ELECTROLYTE EXCRETION
07791
KIDNEY ELECTROLYTE SECRETION
00832 01613 01669 06987

KININS
SEE ALSO BRADYKININ
01190 01760 01986* 02657 04396 04737 06315 07636
06093*
KLEBSIELLA
02267
KWASHIORKOR
00558 00759 01791 03425 03442 04109 04261 05030*
05039 06239* 06276 06359 07528* 07537* 07575 07659
07662 08643*

LACTASE
01182* 01436 01444 01745 02243 02825 05558 05726
06671 07964*
LACTASE DEFICIENCY
01183* 04822 08164
LACTOSE
07785*
LACTOSE ABSORPTION
00538 01436 01440 01444 01745 01754 02243 02244
02250 02820 02825 03057 04199* 04566 04749* 05726
05730 05735 07067* 07115 07964* 08417
LARGE INTESTINE
SEE ALSO CECUM
SEE ALSO COLITIS
SEE ALSO DIARRHEA
SEE ALSO DYSENTERY
SEE ALSO ENTEROCOLITIS
SEE ALSO ILEOCECAL VALVE
SEE ALSO ILEUS
SEE ALSO INTUSSUSCEPTION
SEE ALSO RECTUM
SEE ALSO SIGMOID
00936 01475 03062* 04708* 05194* 05372 05562 05693
07593
LARGE INTESTINE ABSCESSES
08515
LARGE INTESTINE ABSORPTION
00029* 00030* 00603 01055 01061 01840* 01844* 01849*
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04327 04332 04517 04529 05172 05178 05179 05183
05733 06674 06675 06740 07114 07160 07787 07788
07790 07792 07793 07800 07805 07806 07833
LARGE INTESTINE ANGIOGRAPHY
00203* 00207* 00348 01263 02265 07531* 08509
LARGE INTESTINE ANOMALIES
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02253* 02257 02295 03086 03092 03484 03760 03984
03994 03995 04002 04021 04030 04035 04775 04776
04785 04811 05399* 05766 05781 05821 05822 06358
07113 07121 07122 07123 07138 07148 07161 07176
08310 08482 08502 09030

LARGE INTESTINE ATRESIA
03084* 05753 08266
LARGE INTESTINE BIOCHEMISTRY
00564* 01017* 01181* 02657 03102 04249 04527 05097*
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LARGE INTESTINE BIOPSY
00624 00824* 01265 01758 02254* 03645 03705 04033
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LARGE INTESTINE CANCER
00238* 00293 00426 00568 00575 00577 00579 00584
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07108* 07124 07150 07177 07180 07523* 07995* 08443*
08464 08472 08500 08509 08510 08511 08534 08546
LARGE INTESTINE CARCINOGENESIS
01484 04212 04760*
LARGE INTESTINE CHEMICAL COMPOSITION
00564*
LARGE INTESTINE CIRCULATION
00207* 00348 00931 01450* 01467 01485 01487 02064*
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05737* 05831 06688* 07157 07167 07974 07987 08432*
08906
LARGE INTESTINE CYSTS
00596 01468 02285 04005 07164 08475
LARGE INTESTINE DEVELOPMENT
00621 01475 03071* 04775 04813 05761 06667* 08470
08492 08499
LARGE INTESTINE DIAGNOSIS
00203* 00207* 00224* 00225* 00238* 00252 00256 00293
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07177 07179 07182 07186 08040 08052 08053 08430*
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08513 08519 08520 08524 08530 08535 08539 08541
09019

LARGE INTESTINE DISEASE EPIDEMIOLOGY
02273 04759* 05740* 05756 06242*
LARGE INTESTINE DISEASE ETIOLOGY
00598 02279 05740* 05756 08445*
LARGE INTESTINE DISEASES
00625 00993 01453* 01462 01804 02282 02286 02290
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07181 07632 07647 07664 07670 07671 07672 07673
07674 07676 07677 07684 07723* 08405 08422 08432*
08477 08487 08899 08962 08969 08982 09004 05599*
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LARGE INTESTINE DIVERTICULA
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04757* 04776 04804 04810 05713 05745* 05756 05782
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08533 05740* 07164
LARGE INTESTINE DIVERTICULITIS
00561* 00580 00594 00600 00610 01461 01471 01486
02261 02262 03081* 03083* 03974* 03979* 04208* 04804
05740* 05756 05777 05788 07112 07173 07648 08435*
08439* 08444*

LARGE INTESTINE ENDOSCOPY
00225* 00579 00591 01070* 01234 01265 03645 03658
04018 04048 04306 06745
LARGE INTESTINE ENZYMES
01017* 01181* 02254* 05097* 06667* 06673 06678

LARGE INTESTINE FISTULAS
00468* 00596 00608 00612 01471 01478 01500 01708
02177 02262 02983 03070* 03078* 03080* 03436 04034
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08965 05645 05783 06251 08174 08895*
LARGE INTESTINE HISTOLOGY
00203* 00565* 00596 00615 01453* 01457 01729* 01994
02165 02250* 02286 02301 02993 03069* 03103 03105
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05830 06237* 06443 06697 06778 07125 07151 07723*
07759 07772 08433* 08449 08470
LARGE INTESTINE IMMUNOLOGY
00224* 00630* 00631 01453* 01491* 01502 03124 03476
04278* 04524 05089* 05143 06227* 06446 06454 07675
07686 07966* 08430* 08953 08990
LARGE INTESTINE IN CHILDREN
00581 00621 01456 02277 03084* 03983 03984 03986
04769 05065 05085 05399* 05753 05761 05813 07118
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LARGE INTESTINE INJURIES
00570 00620 02992 03070* 03981 04009 04026 04758*
04787 08052 08513
LARGE INTESTINE LYMPHOGRAPHY
00252
LARGE INTESTINE METABOLISM
01181* 04350 04528

LARGE INTESTINE MICROORGANISMS
00630* 00824* 00927 00948 01491* 01729* 01776 02267
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07704 07738 07740 07749 07759 07982 08029 08039
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09009 09018 09021 09023 06243
LARGE INTESTINE MORPHOLOGY
00225* 01293 01467 02646 04306 05092* 05140 05399*
05740* 06423 06434 06697 07750 07824 08438* 08508
08521
LARGE INTESTINE MOTILITY
00046* 00050* 00052* 01070* 01073* 01190 01211* 01447*
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07149 07811* 07813* 07816 08199 08321 08439* 08441*
LARGE INTESTINE MUCOSA
00015* 00224* 00568 00588 00596 00598 00610 00635
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07160 07166 07189 07665 07723* 07760 07772 07774
07787 07792 07970 08471 08497 08508 08518
LARGE INTESTINE NECROSIS
08518
LARGE INTESTINE NEOPLASMS
02551* 03093 03104 03905 03973* 04033 04034 05393*
05761 05803 05819 06990 07112 07126 07138 07179
07714 08314 08441* 08453 08470 08476 08486 08501
08993
LARGE INTESTINE NEOPLASMS,BENIGN
00578 00579 00588 00591 00592 01463 01465 02250*
03094 03107 03987 03988 04015 04016 04694 04771
04780 04791 05393* 05776 05813 07137 07141 08535
LARGE INTESTINE NEOPLASMS,MALIGNANT
00252 00575 00579 00584 00593 00596 00599 00601
00611 00612 00623 01448* 01449* 01451* 01497* 01758
02250* 02274 02284 03061* 03080* 03087 03114 03393
03413 03970* 03971* 04015 04036 04195* 04208* 04212
04218 04547* 04759* 04760* 04791 04797 04799 04800
04812 05023* 05393* 05744* 05749 05751 05760 05789
05790 05795 05796 05799 05810 05838 05839 05843
05905* 06344 06984 07101* 07102* 07119 07124 07136
07137 07141 07150 07155 07166 07171 07185 07192
08430* 08434* 08446* 08450 08458 08468 08480 08489

LARGE INTESTINE NEOPLASMS,MALIGNANT
CONTINUED
08529 08544 08545 08559 08902
LARGE INTESTINE NEOPLASMS,VILLOUS
00611 03970* 07172
LARGE INTESTINE OBSTRUCTION
00561* 00569 00574 00581 00587 00590 00602 00603
00604 00607 00617 00626 00895* 00950 00998 01001
01002 01240 01366 01367 01368 01445* 01471 01480
01486 01751 02257 02262 02615 02959* 02975 02984
03070* 03073* 03076* 03092 03109 03141 03388 03413
03901 03907 03983 04027 04028 04050 04200* 04216
04499* 04547* 04682 04778 04785 05020 05026* 05080
05601* 05748 05772 05777 05778 05779 05811 05811
05827 05839 05843 05857 06022 06321 06340 06368
07104* 07105* 07117 07118 07130 07149 07154 07179
07665 08275 08287 08294 08321 08505 08507 08519
08551 08838 08895* 08898 08992
LARGE INTESTINE PATHOLOGY
00225* 00238* 00565* 00571 00578 00585 00596 00607
00616 00635 00824* 00968 01446* 01450* 01453* 01454*
01467 01472 01473 01476 01486 02046 02279 02290
02291 02301 03069* 03094 03102 03105 03110 03121
03127 03953* 03954* 03957 03970* 03972* 03985 03992
04008 04008 04012 04023 04031 04048 04233 04529
04771 04776 04781 04812 04815 04817* 05143 05458
05599* 05710* 05737* 05740* 05746* 05747 05758 05761
05767 05798 05805 05843 06262 06388 06994 07058
07106* 07117 07139 07151 07156 07156 07157 07163
07167 07175 07189 07193 07524* 07691 08262 08314
08432* 08471 08479 08515 08518 08521 08538 08542
08544 08545 08554 08984 08992 09018 09020
LARGE INTESTINE PERFORATION
00561* 00563* 00570 00584 00597 00601 00604 00610
00626 00632 01450* 01487 01728* 01763 02262 03070*
03107 03219* 03981 04005 04040 04050 04243 04701
04772 04811 04815 05031* 05083 05755 05779 06327
06369 06969 07111 07120 07133 07140 07141 07162
07179 07665 08433* 08442* 08444* 08445* 08542 08543
08555
LARGE INTESTINE PERFUSION
00029* 00030* 01844* 02656* 04316* 07723*
LARGE INTESTINE POLYPS
00578 00579 00592 00596 00599 00611 01457 02273
02274 02610 03093 03095 03104 03883 03972* 03973*
03986 03987 03988 04015 04033 04037 04212 04759*
04769 04780 05776 05813 05819 06990 07119 07137
07141 08470 08544 08993
LARGE INTESTINE PROSTHESIS
02271
LARGE INTESTINE RADIOLOGY
00256 00348 00576 00592 00598 00599 00603 00635
01211* 01240 01259 01263 01265 01447* 01457 01461
01471 02046 02265 02277 02290 02299 02853 02959*
03086 03089 03093 03103 03121 03125 03484 03624
03625 03658 03660 03679 03905 03907 03957 03970*
03971* 03983 03984 03986 03999 04018 04027 04029
04034 04039 04045 04048 04342 04547* 04568 04682
04780 04796 05084 05375 05399* 05458 05768 05777
05797 05814 05823 05825 06742 06778 07112 07117
07130 07133 07137 07138 07142 07144 07149 07152
07182 07186 07192 08040 08433* 08438* 08459 08468
08519 08520 08529
LARGE INTESTINE SECRETION
00029* 00030* 02657 04527 04529 05159* 06237* 07665
07800
LARGE INTESTINE STRICTURE
04027 08451 08525
LARGE INTESTINE SURGERY
00207* 00525 00561* 00563* 00564* 00568 00569 00570
00572 00573 00574 00575 00576 00577 00579 00580
00587 00589 00590 00594 00595 00597 00598 00599
00602 00611 00614 00619 00620 00627* 00636 00637
00683* 00690* 00940 00950 00995 00998 01001 01367
01368 01445* 01447* 01451* 01458 01459 01465 01466
01471 01474 01478 01480 01486 01493* 01494* 01497*
01532 02165 02250* 02257 02261 02262 02265 02269
02270 02271 02273 02275 02284 02285 02291 02295
02296 02301 02541* 02775 02975 02984 03037 03061*
03062* 03063* 03066* 03070* 03076* 03078* 03079* 03080*
03081* 03082* 03083* 03084* 03092 03094 03098 03100
03102 03105 03107 03110 03112 03114 03122 03126
03127 03315* 03338 03388 03392 03393 03413 03436
03658 03729* 03731* 03760 03778 03951* 03953* 03954*
03969* 03971* 03972* 03974* 03985 03994 03995 03995
03998 04009 04013 04016 04017 04026 04028 04032
04034 04037 04049 04061 04375 04490* 04610 04758*
04762* 04769 04773 04778 04781 04783 04787 04799
04805 04810 04813 04815 04817* 05083 05088 05205
05399* 05498 05574 05632 05710* 05739* 05748 05749
05753 05757 05761 05766 05771 05774 05775 05777
05781 05782 05783 05799 05800 05801 05810 05821
05822 05836 05905* 06029 06257 06258 06269 06278
06334 06369 06395 06515 06851 06942* 07099* 07103*
07104* 07111 07113 07117 07120 07125 07133 07139
07146 07147 07155 07156 07161 07172 07648 07650

LARGE INTESTINE SURGERY
CONTINUED
07713 07739 08124 08249* 08294 08310 08314 08431*
08433* 08434* 08435* 08442* 08444* 08448 08449 08451
08452 08453 08454 08457 08461 08462 08467 08470
08473 08482 08488 08491 08492 08493 08494 08495
08497 08501 08505 08506 08514 08515 08516 08522
08530 08533 08539 08543 08544 08545 08546 08552
08606 08858 08919
LARGE INTESTINE TRANSPLANTATION
00348 00349 02064* 02165 02876 03396 03762 04610
08437*
LARGE INTESTINE TRAUMA
00570 00620 04024 04026 05799 07144
LARGE INTESTINE TREATMENT
00576 00599 00940 01367 02256* 02261 02264 02294
02296 02362 02565 02582 02914 03098 03388 03424
03985 03992 04009 04011 04031 04781 04819 05745*
05754 05755 05773 05805 05821 07115 07146 07159
07170 07552 08290 08445* 08457 08491 08492 08506
08513 08514 08965
LARGE INTESTINE ULCERS
01450* 02226 03097 05698 05706 07152 07189 08357
08517 08551
LARGE INTESTINE ULCERS,NONSPECIFIC
05840
LARGE INTESTINE ULTRASTRUCTURE
03454* 04290 07132 07171 07759 07760 07787 08464
LARGE INTESTINE VOLVULUS
00569 00574 00607 01459 02543* 02959* 03064* 03070*
03989 04002 04547* 05777 05802 07110 07121 08447*
08457 08469 08505 08507
LARGE INTESTINE,AGE EFFECTS ON
01368 07102* 08435*
LARGE INTESTINE,DISEASES ASSOCIATED WITH
03126 03201 05791 06242* 07162 08524
LARGE INTESTINE,DRUG EFFECTS ON
06227* 06300 06691*
LARGE INTESTINE,DRUG TREATMENT OF
00627* 03062* 05835 07152 07160
LARGE INTESTINE,FOREIGN BODIES IN
03107 04028 06969
LARGE INTESTINE,HORMONAL CONTROL OF
00994 01860* 06559 07995*
LARGE INTESTINE,NERVOUS CONTROL OF
00015* 00046* 00052* 00890* 01073* 01858* 02540* 02657
03060* 03069* 04006 04011 04819 05140 05399* 05746*
06381 07824
LARGE INTESTINE,TOXIC EFFECTS ON
00598 00627* 01493* 01776 02299 02544* 02993 03491*
04540 04797 04827 05835 06237* 08445*
LAXATIVES
01259 04246 05069 05871 07170 07559 07799 07803
08441*

LEAD
02424 03165* 05299*

LEIOMYOMA
00403 00406 00444 01346 02128 02525 03661 03792
03833 03846 03848 04679 05434 06797* 06964 06986
08176 08217 08535 06861*

LEIOMYOSARCOMA
00456 00467 01332 01360 01479 02092 02134 02266
02314 04208* 04614 04654 04662 05559 06986 07534*
06861*

LEPROSY
01558
LEPTOSPIROSIS
00697* 03373 03406
LEUCINE AMINOPEPTIDASE
00234* 01205* 03621
LEUKEMIA
00816 05536

LIPASE
00209* 01816* 03672 05260*
LIPASE SECRETION,PANCREAS
00062* 00094* 00100* 00102* 00274 01102 01241 01991
02057 02058 02059 02060 02305 02310 03527* 03529*
04328 04391 04392 04393 04394 04399 04842 04851*
04944* 05208* 05260* 05263* 05877 05879 05883* 06074*
06552* 06553*
LIPASE SECRETION,STOMACH
01046*
LIPID ABSORPTION
00025* 00036 00040 00041 00186 00193 00274 00431*
00436* 00466 00499 00520* 00532 00535 00539 00554
00657 00893* 01037* 01041* 01042* 01046* 01051 01055
01056 01058 01059 01357* 01371 01372 01373 01374

LIPID ABSORPTION
CONTINUED
01426* 01431 01439 01712 01737 01841* 01851 01852
01853 01985 01997 02027* 02154 02236* 02246 02364
02416* 02472* 02648 02726 02727 02747 02861 03022
03046 03049 03200 03397 03479* 03481* 03587 04327
04328 04355* 04559 04567 04832 04968 05166* 05170
05184 05198* 05373 05665* 05695 05730 06032 06256
06326 06452 06453 06485 06718* 07114 07226* 07787
07974
LIPID DIGESTION
00169 00186 00938 01046* 01051 01737 01853 04328
04761* 05126 05722*
LIPID METABOLISM
00036 00184* 00186 00189 00191 00657 00893* 01051
01357* 01719 01809 01853 01985 01990 01997 02304*
02648 02665 02666 02734 02747 02801 03049 03137
03548* 03596* 04399 04559 04832 04843 05166* 05351
05364* 05869 05878 06108 06172 06256 06436 06485
06522 06642 06878 07337 07493 07753 07867* 07908
LIPID METABOLISM,LIVER
00100* 00109* 00117* 00121* 00126* 00130* 00133* 00157
00161 00166 00169 00172 00173 00191 00193 00712
00761 00769* 00828* 01121* 01135* 01136* 01138* 01544*
01618 01666 01737 01836 01922* 01928* 01968 01969
01972 01977 01985 02042 02346* 02364 02395 02416*
02428 02429 02431 02460* 02481 02626* 02648 02698*
02705* 02707* 02724 02733 02747 02806 02807 03192
03397 03447* 03535* 03536* 03542* 03543* 03548* 03569
03582 04098 04350 04402* 04404* 04420* 04434* 04443
04452 04458 04471 04472 04473 04477 04478 04870*
04905 04968 05276* 05285* 05301 05322 05337 05404*
05953 06055* 06401* 06574* 06603 06613 06615 07734*
07891* 07893* 07903* 07912 07927 08642* 08728* 08749
08794 08958
LIPID METABOLISM,SMALL INTESTINE
01020*
LIPIDOSIS
07643
LIPIDS
SEE ALSO ABSORPTION
00151 00828* 02623* 03548* 04313* 04365* 04406* 04750*
04761* 05173 05328 06660 07281 07464 07723* 08643*
LIPIDS,PLASMA
00184*
LIPOMA
02158 03681 04016 04694 09008
LIPOPROTEINS
04873* 04982* 05158* 08643*
LIVER
SEE ALSO AMEBIASIS
SEE ALSO BILE
SEE ALSO BILIARY TRACT
SEE ALSO BLOOD COAGULATION
SEE ALSO CHOLESTASIS
SEE ALSO CIRRHOSIS
SEE ALSO FOLIC ACID
SEE ALSO GLYCOGEN STORAGE DISEASE
SEE ALSO HEMOSIDEROSIS
SEE ALSO HEPATITIS
SEE ALSO PARASITES AND PARASITIC DISEASES
SEE ALSO PORPHYRIA
SEE ALSO SCHISTOSOMIASIS
SEE ALSO SULFOBROMOPHTHALEIN
SEE ALSO VITAMINS
00987 01551* 02828 03264* 03484* 03546* 04500* 05693
06333 06570*

LIVER ABSCESSES
00222* 00682* 00703* 00723 00728 00731 00926 01230
01491* 01536* 01554* 01570 01601 01607* 01728* 02052
02091 02354 02372 02433 02442 02450 03028 03113
03179 03201 03216 03220* 04092* 04108 04124 04555*
04863* 04927 04930 04939 04943 05044 05911* 05972
06003 07165 07240* 07241* 07265 07280 07294 07298
07634 07715 08133 08378 08624* 08700 08725 08726
08730* 05391* 08660
LIVER ABSORPTION
06640
LIVER AMINO ACID METABOLISM
00111* 00120* 00139* 00745 01128* 01134* 01158 03261*
03446* 04886 05288* 06484 06565* 07264 07886*
LIVER AMMONIA EXCRETION
00295 00745 00752 00835 01150* 01171 01547* 01550*
01590 01654* 01973 02001* 02003* 02355 02502* 02720
02827 03213 03478* 03554* 04087* 04321* 04430* 04536
07877* 08618* 08678 08680 08681
LIVER ANGIOGRAPHY
00204* 00244 00260 00273 00957 01224 01248 01253
01781 01805 02009* 02010* 02049 02349* 02350* 02630
02819 02821 02848 03175 03702 04096 04210 04551*
04872* 04875* 05385 05463 05487 05906* 05914* 06028
06044 06104 06706 06744 07235* 07239* 07241* 07305
07983 08036 08037 08038 08787* 06042 06354

LIVER ANOMALIES
01545* 02349* 02412 03196 04120 05124 05956 07312
08185 08652 08684

LIVER BIOCHEMISTRY
00012* 00021 00064* 00108* 00111* 00112* 00113* 00114*
00116* 00117* 00118* 00120* 00121* 00122* 00124* 00125*
00127* 00128* 00131* 00132* 00134* 00136* 00137* 00138*
00139* 00140* 00141* 00143 00147 00148 00149 00150
00152 00154 00155 00156 00157 00158 00160 00161
00162 00166 00167 00168 00170 00171 00174 00175
00176 00201* 00202* 00226* 00693* 00722 00726 00745
00749 00759 00764 00767* 00768* 00769* 00780 00788
00791 01014* 01017* 01019* 01026* 01030 01119* 01120*
01121* 01123* 01124* 01125* 01127* 01128* 01130* 01131*
01132* 01134* 01136* 01137* 01138* 01139* 01140* 01141*
01145* 01146* 01148* 01149* 01150* 01151 01152 01153
01154 01156 01157 01159 01160 01161 01163 01164
01165 01170 01173 01175 01205* 01541* 01555 01625*
01635 01639 01655* 01823 01826 01836 01922* 01923*
01924* 01925* 01926* 01927* 01928* 01929* 01930* 01932
01933 01935 01937 01944 01945 01946 01947 01948
01949 01950 01951 01952 01953 01954 01955 01956
01957 01958 01959 01960 01962 01964 01965 01966
01967 01968 01969 01970 01973 01974 01975 01977
01978 01979 01980 01981 01982 02037 02042 02376
02381 02406 02418* 02419* 02424 02427 02443 02449
02460* 02492 02618* 02624* 02635 02639 02694* 02695*
02696* 02697* 02698* 02700* 02701* 02702* 02704* 02705*
02706* 02709* 02710* 02711 02712 02713 02714 02715
02718 02719 02720 02721 02722 02726 02727 02728
02732 02738* 02765* 02771 02827 02830 02838 03154*
03169* 03170* 03186 03187 03191 03194 03209 03210
03213 03222 03223 03224 03227 03273 03446* 03447*
03469* 03473 03475 03484* 03533* 03534* 03535* 03538*
03539* 03541* 03542* 03543* 03544* 03545* 03546* 03547*
03548* 03549* 03551* 03557 03563 03564 03565 03566
03567 03571 03575 03575 03576 03577 03578 03581
03582 03583 03584 03586 03587 03588 03589 03590
03592 03622 03635 03649 03650 03714 03868* 04087*
04098 04112 04148 04151* 04159 04248 04265* 04271*
04291 04299 04308 04404* 04405* 04418* 04435 04436
04437 04440 04444 04445 04446 04447 04448 04449
04450 04451 04452 04453 04454 04455 04457 04458
04462 04465 04466 04467 04468 04469 04471 04472
04473 04474 04475 04477 04502* 04821 04879* 04893
05099* 05106* 05107* 05118 05123 05176 05210 05220
05275* 05284* 05285* 05287* 05288* 05289* 05290* 05295*
05298* 05299* 05302 05305 05306 05307 05309 05310
05311 05313 05314 05317 05324 05326 05328 05332
05333 05334 05336 05337 05340 05342 05351 05379*
05414 06004 06006 06024 06055* 06079* 06400* 06410*
06411* 06424 06426 06428 06432 06457 06565* 06567*
06569* 06579* 06587* 06596* 06597* 06598* 06600* 06610
06613 06616 06619 06620 06621 06622 06623 06624
06625 06627 06630 06634 06637 06638 06639 06641
06649 06650 06653 06658 06659 06660 06664 07256*
07271 07382 07431* 07464 07718* 07732* 07734* 07741
07754 07755 07762 07768 07775* 07877* 07879* 07881*
07882* 07886* 07887* 07888* 07889* 07890* 07892* 07895*
07897* 07898* 07899* 07903* 07906 07909 07916 07920
07926 07928 07929 07934 07936 07947 07948 07949
07950 07951 07952 07953 07954 07956 07957 07958*
08028 08620* 08621* 08627* 08630* 08633* 08640* 08696
08728* 08740 08777 08779 08814 08824 03471

LIVER BIOPSY
00021 00173 00215* 00216* 00222* 00246 00306 00698*
00701* 00733 00734 00759 00774* 00824* 00879 00903*
01195* 01196* 01206* 01208* 01230 01242 01384 01534*
01536* 01551* 01556 01574 01606* 01674 01781 01826
02009* 02360 02366 02380 02405 02466 02494 02712
02765* 02769* 02771 02799 02806 02807 02852 03156*
03177 03182 03183 03186 03204 03208 03217* 03220*
03230 03251 03273 03275 03281* 03654 03682 03706
03907 04086* 04106 04109 04110 04130 04140 04141
04145 04160 04210 04280* 04285 04562 04572 04579
04594 04623* 04881 04887 04908 04913 04934 05048
05099* 05107* 05121 05123 05124 05669* 05908* 05939
06013 06048 06061 06107 06132* 06159 06172 06206
06436 06451 06597* 06728 06729 06730 06755 07074
07246* 07300 07316 07329 07393* 07425* 07427* 07431*
07446 07487 08044 08648 08667 08672 08696 08727
08738 08762 08785* 08801 08828* 08652
LIVER CALCULI
01561
LIVER CANCER
00139* 00215* 00219* 00683* 00684* 00685* 00686* 00704*
00729 00756 00763 00764 01196* 01217* 01218* 01230
01266 01551* 01557 01580 01605 01677* 01725* 01780

LIVER CANCER
CONTINUED
01800 01823 01933 01934 01943 02009* 02177 02340*
02360 02365 02366 02369 02379 02381 02402 02406
02492 02723 02729 02787 02904* 02921 03157* 03164*
03170* 03171* 03197 03198 03203 03214 03232* 03475
03549* 03565 03566 03586 03610* 03706 04096 04099
04105 04108 04113 04116 04155* 04162 04210 04283
04304 04411* 04412* 04503* 04549* 04553* 04555* 04577
04869* 04876* 04878* 04891 04909 05101* 05397* 05400*
05402* 05405* 05914* 05915* 05920* 05921* 05922* 05923*
05925* 05975 05976 06008 06035 06101* 06119 06409*
06570* 06701 07231* 07237* 07238* 07239* 07242* 07248*
07253* 07268 08638* 08639* 08640* 08711 08712 08722
08739 08942
LIVER CARBOHYDRATE METABOLISM
00016* 00021 00112* 00117* 00124* 00141* 00142 00143
00154 00174 00231* 00729 00740 00749 00768* 00770*
01149* 01163 01537* 01549* 01655* 01817* 01921* 01924*
01925* 01927* 01928* 01929* 01939 01953 01977 01979
02191* 02342* 02346* 02390 02451 02702* 02705* 02706*
02718 02724 02733 03192 03542* 03544* 03547* 03571
04098 04157 04248 04402* 04421* 04443 04445 04446
04477 04482 05106* 05107* 05294* 05338 05340 05953
05969 06052* 06097* 07381 07881* 07882* 07893* 07903*
08796
LIVER CARCINOGENESIS
00138* 00155 00159 00782 00786 00789 01569 01624
01823 01825 01926* 01930* 01943 01945 01955 01978
02422 02434 02436 02443 02446 02696* 02718 02723
02725 03448* 03475 03549* 03564 03567 04129 04424*
04445 04496* 04503* 04505* 04862* 05101* 05147 05308
05314 05349 05356 05388 05928 05996 06023 06400*
06419 06420 06429 06590* 06648 07242* 07281 07773
08629* 08675 08734*
LIVER CARCINOGENS
05311
LIVER CHEMICAL COMPOSITION
00117* 00138* 01826 02624* 03446* 05328 05903* 06056*
06428 06609 06619 07898* 08621*
LIVER CHOLESTEROL METABOLISM
00122* 00153 00171 00193 00436* 00829* 01125* 01544*
01983 01985 02648 02666 02707* 02747 02807 03245
03483* 03543* 03559 04406* 04416* 04442 04510* 04557*
04987 05171 05302 05334 05404* 05953 06572* 06583*
06585* 07912 08642*
LIVER CIRCULATION
00010* 00099* 00182* 00223* 00231* 00677* 00686* 00700*
00702* 00706* 00713 00715 00716 00721 00725 00744
00747 00750 00753 00770* 00783 00822* 00827* 00839
01166 01174 01191 01243 01297 01509 01533* 01539*
01541* 01549* 01565 01566 01575 01587 01588 01590
01595 01596 01605 01606* 01652* 01659 01668 01713
01724* 01781 01805 01928* 01939 02010* 02012* 02066*
02348* 02349* 02350* 02353* 02371 02373 02379 02384
02385 02390 02396 02401 02412 02424 02459* 02480
02621* 02631 02703* 02713 02714 02744 02749 02848
03155* 03159* 03167* 03191 03196 03268 03283* 03448*
03449* 03450* 03458* 03474 03557 03600* 03603* 03605
03635 03683 03702 04114 04119 04120 04285 04302
04318* 04385* 04460 04461 04498* 04519 04532 04533
04554* 04562 04580 04860* 04885 04895 04897 04898
04938 04962* 04963* 04969 04972 05107* 05141 05144
05274* 05321 05331 05348 05376* 05379* 05380* 05381*
05382* 05383 05385 05427 05489 05634 05906* 05929
05952 05959 05962 05994 06006 06022 06051* 06100*
06115 06414 06575* 06682* 06684* 06685* 06687* 06690*
06700 06701 07229* 07235* 07269 07278 07312 07423*
07430* 07436 07460 07746 07893* 07977 07978 07981
07983 08036 08618* 08659 08683 08783* 08786* 08787*
08799 08807
LIVER CIRRHOSIS
06701 07382
LIVER COMA
00295 00689* 00714 00722 00750 00752 00753 00775*
00808 00815 00818* 00819* 00822* 00834 00835 00838
00958 01150* 01171 01291 01540* 01541* 01547* 01575
01582 01588 01589 01603 01634 01638 01644 01654*
01670 02003* 02342* 02355 02356 02362 02363 02376
02378 02386 02432 02474* 02592 02885 03199 03212
03228 03258* 03537* 04097 04104 04114 04118 04318*
04429* 04607 04942 05867 05950 05958 05965 06037
06060 06070 06105 06213 07277 07279 07296 07299
07322 07372 07411 07637 08008* 08613 08635* 08645
08651 08679 08683 08703 08724 08733* 08735 08748
08765
LIVER COPPER METABOLISM
00688* 00707* 00777* 00997 01962 02368 02411 02697*
02788 02830 03183 04275* 04286 04439 04866* 05115*
06047 06281 07267 07304 07318 07319 07462 07899*
08621* 08637*
LIVER CYSTS
00243 00244 00682* 00717 00718 00719 00720 00730
00743 00852 00904 00905 00906 00907 00909 00910
01248 01560 01573 01599 01607* 01609 02377 02383
03164* 03175 03180 03352 03664 03670 04569 04926

LIVER CYSTS
CONTINUED
04931 04932 05068 05072 05327 05956 05960 05964
05968 05971 05977 06020 06307 07286 07320 07323
07338 08650 08699 08705 08716
LIVER CYTOLOGY
07431*
LIVER DEVELOPMENT
00003* 00143 00776* 01029 01130* 01145* 01163 01817*
01923* 01942 01950 01959 01967 01968 01969 02349*
03471 04132 04286 04418* 04437 04441 04451 04535
04900 05126 05150 05289* 06440 06584* 06593* 06598*
07756 07875* 07947 08630*
LIVER DIAGNOSIS
00204* 00214* 00216* 00222* 00223* 00231* 00234* 00243
00244 00245 00246 00254 00260 00267 00272 00273
00279 00290 00291 00294 00295 00682* 00692* 00701*
00707* 00710 00712 00728 00731 00732 00733 00734
00774* 00781 00838 00957 00991 01009* 01128* 01200*
01205* 01206* 01208* 01217* 01218* 01224 01230 01231
01235 01242 01248 01253 01266 01550* 01551* 01554*
01556 01560 01567 01568 01574 01595 01599 01613
01615 01617 01623 01772 01832 02000* 02001* 02008*
02009* 02010* 02014* 02018* 02019* 02023* 02030* 02034*
02038 02045 02049 02050 02052 02056 02354 02366
02377 02383 02399 02400 02401 02406 02408 02411
02421* 02430 02449 02461 02757* 02765* 02770 02790
02799 02805 02806 02807 02809 02811 02819 02821
02829 02833 02834 02835 02836 02838 02842 02848
02850 02851 02852 02854 02968 03118* 03156* 03166*
03175 03178 03183 03214 03216 03217* 03220* 03225
03233* 03246 03610* 03613* 03617* 03620 03621 03635
03643 03650 03654 03662 03664 03666 03667 03668
03670 03671 03675 03682 03683 03688 03690 03706
03716 03722 04081* 04084* 04086* 04092* 04094* 04096
04122 04124 04160 04210 04218 04302 04304 04440
04482 04549* 04551* 04554* 04555* 04562 04569 04570
04572 04574 04579 04580 04582 04594 04873* 04875*
04881 04885 04894 04912 04918 04922 04926 04932
04934 04966 05068 05099* 05165* 05290* 05345 05402*
05405* 05407* 05412 05424 05426 05437 05463 05906*
05909* 05911* 05932 05948 05956 05959 05960 05963
05964 05993 05994 06021 06024 06042 06048 06057
06065 06079* 06198 06204 06451 06486 06653 06662
06700 06701 06717* 06720* 06728 06730 06732 06740
06771 06772 07235* 07240* 07241* 07245* 07257* 07294
07311 07316 07323 07336 07415 07435 07436 07446
07447 07457 07990* 07998* 08014 08025 08043 08205
08621* 08632* 08638* 08672 08676 08696 08715 08742
08775 08785* 08787* 08790
LIVER DIAGNOSIS,RADIOLOGY IN
01536* 05910*

LIVER DISEASE COMPLICATIONS
02482 05352 05981 05999 06223 07293 07296
LIVER DISEASE DIAGNOSIS
SEE ALSO LIVER FUNCTION TESTS
02375 02408 02769* 02808 02812 02813 02814 02819
02829 03171* 03468* 04117 04311* 04545* 04872* 04873*
04874* 04876* 04880* 04943 04981* 05313 05392* 05449
05457 05910* 05913* 05950 05986 05997 06004 06030
06040 06097* 06112 06603 06734 06759 07256* 07271
07284 07290 07317 07319 07364 07748 07992* 08016
08047 08652 08654 08656 08673 08686 08700 08721
08832*
LIVER DISEASE EPIDEMIOLOGY
02383 04136* 04862* 04876* 04881 04932 04946* 06029
08733* 08821

LIVER DISEASE ETIOLOGY
00158 00231* 01175 01535* 01561 01603 01732* 01921*
01925* 02372 02383 02393 02394 02440 02478 03216
04876* 04903 04943 05960 05963 05964 06057 06058
07247* 07251* 07298 07300 07371* 07388 07396 08693
06115
LIVER DISEASE TREATMENT
00692* 00714 00724 00731 00732 00737 00740 00745
00746 00752 00760 00779* 00838 00840 00926 01150*
01168 01536* 01540* 01541* 01543* 01560 01561 01573
01575 01582 01601 01603 01613 01622 01623 01645
01646* 01654* 02052 02346* 02355 02358 02363 02368
02373 02375 02384 02385 02389 02417* 02432 02448
02496 02583 02592 02630 03161* 03178 03184 03216
03220* 04097 04098 04103 04106 04111 04114 04518
04878* 04881 04883 04886 04890 04919 04939 04943
04968 05385 05932 05950 05951 05958 05963 06027
06037 06038 06047 06066 06071 06092* 06105 06120
06811 07258 07290 07310 07319 07320 07360 08626*
08712 08714 08723 08724 08733* 08802 08808 08846

LIVER DISEASE,HORMONAL TREATMENT OF
05936 07283
LIVER DISEASES
00021 00625 00693* 00709* 00710 00723 00726 00730
00731 00732 00736 00741 00743 00749 00751 00920
00981 01200* 01215* 01235 01551* 01554* 01560 01570
01572 01588 01604 01763 01770 02034* 02251 02352*
02357 02376 02377 02400 02401 02421* 02442 02450
02469 02480 02492 02586 02622* 02665 02770 02787
02790 02827 02829 02836 02850 02851 02852 02885
03023 03028 03113 03126 03158* 03164* 03170* 03175
03176 03178 03180 03181 03183 03185 03194 03199
03200 03201 03203 03212 03213 03216 03225 03238*
03275 03277 03278 03279 03281* 03387 03570 03580
03605 03662 03669 03671 04083* 04086* 04087* 04089*
04090* 04092* 04093* 04100 04103 04107 04110 04112
04118 04120 04124 04131 04132 04133 04149 04153*
04158 04159 04160 04163 04164 04236 04275* 04425*
04444 04462 04554* 04555* 04562 04569 04580 04748*
04821 04834 04860* 04863* 04873* 04882 04885 04897
04898 04903 04916 04920 04926 04930 04932 04934
04950 04961* 04963* 05054 05068 05072 05115* 05121
05315 05327 05380* 05391* 05414 05909* 05954 05956
05957 05961 05968 05972 05980 06000 06003 06006
06010 06018 06024 06042 06050* 06064 06065 06068
06070 06086 06091 06114 06132* 06159 06181 06307
06473* 06657 06717* 06746 06913 07226* 07264 07265
07266 07276 07278 07303 07323 07324 07326 07332
07338 07345 07350 07354 07418 07487 07519 07634
07643 07663 07715 08618* 08620* 08623* 08637* 08646
08662 08663 08665 08708 08714 08720 08730* 08787*
08788* 08800 08805 08921
05398* 05402* 06093* 06098* 06570* 06594* 07229* 07232*
07235* 07251* 07255* 07394* 07395* 07732* 07733*
LIVER DISEASES IN CHILDREN
05449 06015 06020 08702
LIVER DISEASES TREATMENT
06043
LIVER DISEASES,BIOCHEMICAL DIAGNOSIS OF
00707* 01128* 01205* 01616 02001* 02012* 02038 02393
03690 04098 04572 05133 05919* 05983 06107 06707*
07238* 07256* 07317
LIVER DISEASES,BLOOD COAGULATION IN
00178* 00754 00763 01549* 02378 04094* 04157 04444
06279 07417 08808
LIVER DISEASES,DISEASES ASSOCIATED WITH
04149
LIVER DISEASES,METABOLIC CHANGES IN
02056 02387 02391 02395 04905 07290 08618*
LIVER DISEASES,TREATMENT OF
06228*
LIVER DRUG METABOLISM
00114* 00131* 00134* 00148 00149 00150 00770* 00780
00791 01127* 01148* 01940 01941 01960 01961 01970
01972 01975 01976 02037 02382 02415* 02483 03484*
03549* 03564 03567 03583 04271* 04403* 04409* 04424*
04426* 05315 07906 07949
LIVER ELECTROLYTE METABOLISM
01931 02425 03869* 04466 04470 06609
LIVER ENDOSCOPY
04162

LIVER ENZYMES
00012* 00062* 00111* 00112* 00113* 00114* 00116* 00117*
00120* 00128* 00131* 00132* 00136* 00139* 00140* 00141*
00143 00149 00150 00152 00154 00155 00156 00160
00161 00164 00165 00167 00168 00170 00172 00174
00175 00176 00234* 00545 00688* 00693* 00694* 00749
00759 00764 00768* 00805 01014* 01017* 01023* 01026*
01030 01119* 01123* 01125* 01127* 01128* 01130* 01131*
01132* 01133* 01134* 01138* 01139* 01140* 01142* 01145*
01148* 01151 01152 01154 01155 01156 01157 01159
01161 01162 01163 01165 01170 01171 01173 01205*
01537* 01543* 01594 01635 01655* 01817* 01923* 01924*
01927* 01930* 01932 01933 01935 01937 01940 01941
01942 01943 01944 01945 01946 01947 01948 01949
01950 01951 01952 01953 01955 01958 01960 01962
01965 01969 01970 01973 01978 01980 02037 02322*
02377 02424 02427 02486 02492 02618* 02635 02639
02641* 02695* 02696* 02698* 02701* 02705* 02706* 02708*
02709* 02710* 02711 02713 02714 02715 02717 02718
02719 02722 02732 02738* 02765* 02771 02829 03166*
03169* 03182 03209 03223 03227 03246 03447* 03471
03473 03475 03484* 03534* 03535* 03538* 03539* 03540*
03541* 03542* 03544* 03545* 03547* 03548* 03549* 03550*
03551* 03555* 03563 03565 03567 03572 03581 03582
03586 03587 03588 03592 03621 03650 03868* 04091*
04148 04268* 04271* 04280* 04291 04304 04392 04404*
04405* 04413* 04417* 04420* 04423* 04424* 04431* 04435
04436 04437 04440 04445 04447 04448 04449 04450
04454 04455 04457 04462 04465 04467 04473 04477
04883 04949 05106* 05107* 05110* 05133 05216 05217
05218 05220 05275* 05276* 05284* 05287* 05288* 05294*

LIVER ENZYMES
CONTINUED
05295* 05296* 05298* 05299* 05300* 05306 05309 05310
05313 05316 05317 05318 05332 05333 05334 05336
05337 05340 05342 05351 05912* 05920* 05997 05998
06006 06021 06024 06049* 06409* 06410* 06424 06432
06484 06486 06565* 06567* 06569* 06572* 06579* 06584*
06587* 06588* 06596* 06597* 06604 06605 06610 06613
06616 06617 06618 06620 06621 06622 06624 06625
06627 06628 06633 06634 06636 06637 06639 06641
06647 06648 06649 06659 06660 06769 07074 07231*
07253* 07270 07271 07282 07333 07366* 07387 07401
07410 07718* 07721* 07730* 07734* 07768 07771 07877*
07879* 07882* 07883* 07886* 07888* 07889* 07890* 07892*
07893* 07894* 07896* 07898* 07903* 07909 07917 07918
07920 07924 07925 07927 07928 07929 07930 07933
07947 07948 07951 07952 07954 07957 07958* 07992*
08008* 08633* 08639* 08640* 08678 08680 08681 08728*
08753* 08777 08785* 08804 08814 08825* 06629 05283*
LIVER ENZYMES IN CHILDREN
01639
LIVER EXTRACTS
00138* 00169 00174 00175 01156 01160 01543* 01625*
01825 01932 02601 04520 04919 05150 05918* 07762
07954
LIVER FIBROSIS
01599 05952 07074
LIVER FISTULAS
00723 02091 02480 07291
LIVER FUNCTION TESTS
00110* 00146 00211* 00222* 00231* 00259 00272 00281
00291 00301 00494 00644* 00684* 00685* 00689* 00692*
00697* 00699* 00700* 00701* 00705* 00708* 00710 00726
00754 00762 00772* 00777* 00779* 00781 00784 00790
00803 00845* 00895* 00977 01174 01195* 01206* 01217*
01221 01225 01226 01231 01235 01237 01243 01244
01248 01503* 01542* 01544* 01550* 01552* 01554* 01558
01567 01577 01578 01582 01585 01587 01591 01595
01600 01603 01605 01614 01615 01616 01619 01621
01627* 01630* 01643 01644 01661 01666 01668 01761
01762 01781 02000* 02004* 02014* 02018* 02023* 02038
02042 02043 02050 02341* 02343* 02345* 02347* 02348*
02350* 02351* 02354 02391 02406 02409 02411 02421*
02423 02430 02438 02441 02454* 02466 02475* 02502*
02556 02622* 02641* 02665 02703* 02721 02757* 02793
02797 02799 02805 02829 02833 02834 02836 02844
03046 03156* 03158* 03166* 03169* 03171* 03172* 03186
03191 03207 03210 03218* 03233* 03235* 03237* 03251
03261* 03264* 03278 03283* 03478* 03537* 03591 03593
03608* 03612* 03613* 03619 03620 03621 03635 03654
03662 03671 03688 03706 03714 03803 03990 04091*
04098 04102 04108 04139* 04248 04280* 04299 04302
04408* 04425* 04458 04476 04482 04545* 04572 04595
04607 04861* 04867* 04870* 04893 04906 04912 04913
04918 04919 04936 04938 04940 04956 04957 05017
05021* 05052 05096* 05275* 05277* 05281* 05313 05325
05357 05396* 05404* 05412 05421 05425 05426 05443
05454 05457 05489 05737* 05916* 05920* 05927 05933
05943 05989 05997 06021 06030 06049* 06053* 06054*
06064 06069 06079* 06094* 06097* 06108 06111 06114
06123 06134* 06187 06228* 06407* 06440 06576* 06588*
06591* 06592* 06632 06645 06652 06729 06731 06755
06771 06772 06780 06913 07157 07245* 07256* 07258
07270 07271 07272 07282 07292 07297 07300 07311
07321 07326 07346 07364 07365 07368* 07382 07384
07390* 07391* 07400 07401 07403 07413 07414 07415
07416 07428* 07504 07580 07593 07722* 07778* 07794
07804 07831 07893* 07894* 07900* 07913 07940 07942
08008* 08013 08015 08016 08044 08191 08205 08287
08375 08622* 08631* 08634* 08662 08669 08674 08676
08681 08694 08720 08721 08732* 08743 08746 08751*
08753* 08763 08775 08792 08807 08860 08954
LIVER GLUCOSE METABOLISM
01927* 02713 02714 06601 07895* 07958*
LIVER GLYCOGEN
00016* 00142 00154 00174 00700* 00749 01149* 01929*
01958 02700* 02704* 02706* 02727 03542* 03545* 03556*
04248 04402* 04405* 04424* 04449 04454 04468 04883
05089* 05107* 05283* 05285* 05299* 05303 05340 05907*
05930 05969 05998 06024 06032 06052* 06410* 06569*
06574* 06575* 06587* 06592* 06618 06633 06650 07755
07881* 07895* 07939 08634* 08647 08731*
LIVER GLYCOGEN METABOLISM
07893*
LIVER HERNIA
00254
LIVER HISTOLOGY
00001* 00003* 00016* 00021 00113* 00114* 00150 00157
00216* 00695* 00697* 00701* 00702* 00705* 00734 00735
00759 00762 00767* 00769* 00769* 00772* 00778* 00783
00785 00787 00788 00833 00836 00979 01013* 01144*
01152 01206* 01208* 01230 01243 01266 01534* 01547*
01551* 01555 01563 01569 01608 01651* 01732* 01805
01832 01833 01920* 01943 01982 01994 02042 02340*
02341* 02343* 02360 02368 02374 02380 02389 02398
02406 02409 02415* 02423 02424 02426 02439 02440

LIVER HISTOLOGY
CONTINUED
02441 02451 02458* 02475* 02490 02492 02601 02635
02696* 02718 02727 02729 02730 02732 02806 02811
02814 02852 03041* 03126 03161* 03167* 03186 03194
03204 03209 03224 03227 03230 03273 03278 03402
03448* 03452* 03467* 03469* 03471 03473 03475 03558
03559 03560 03562 03573 03577 03589 03706 03714
03716 04082* 04084* 04093* 04093* 04102 04112 04128
04130 04248 04268* 04270* 04271* 04272* 04285 04291
04299 04444 04458 04466 04469 04470 04476 04502*
04821 04879* 04894 04895 04913 04918 04927 04934
04937 04956 05091* 05099* 05100* 05101* 05107* 05109*
05113* 05114* 05115* 05118 05121 05122 05133 05280*
05290* 05311 05312 05388 05454 05669* 05914* 05931
05955 05973 06048 06052* 06056* 06065 06185 06396*
06400* 06401* 06404* 06406* 06409* 06414 06415 06416
06419 06420 06421 06425 06435 06447 06459 06461
06566* 06570* 06576* 06594* 06608 06631 06690* 07233*
07242* 07246* 07329 07346 07366* 07369* 07371* 07374
07377 07427* 07436 07460 07663 07722* 07727* 07732*
07746 07756 07758 07762 07764 07770 07771 07773
07809* 07878* 07893* 08043 08627* 08628* 08629* 08634*
08641* 08644 08728* 08788* 08796 08800 08811 08825*
08863 05117*

LIVER IMMUNOLOGY
00001* 00211* 00291 00294 00686* 00687* 00691* 00715
00747 00776* 00793* 00804 00840 01226 01535* 01540*
01542* 01552* 01562 01563 01578 01584 01585 01586
01595 01604 01611 01612 01619 01651* 01658 01664
01732* 01823 01832 02004* 02004* 02018* 02019* 02045
02340* 02341* 02387 02392 02393 02394 02440 02441
02456* 02484 02486 02624* 02735 02793 02811 02812
03182 03246 03387 03399 03468* 03563 03590 03649
03669 03714 04281* 04445 04520 04900 04904 04929
04937 04950 04981* 05095* 05151 05328 05528 05909*
05918* 05955 05962 05975 05980 06000 06004 06006
06069 06075* 06081 06447 06586* 06612 06621 07247*
07290 07317 07411 07425* 07731* 07732* 07733* 07768
07770 08640* 08675 08764 08774 08788*
LIVER IN CHILDREN
00707* 00743 00754 01009* 01548* 01576 01583 01958
02357 02368 02384 02385 02838 03158* 03164* 03178
04115 04286 04322* 04463 04887 04893 04900 04925
04926 04927 04950 05332 05919* 05969 05973 06032
06044 06071 06107 06730 07295 07305 07365 07475
07943 08694 08727 08730* 08812

LIVER INJURIES
00109* 00118* 00158 00172 00228* 00254 00326 00681*
00700* 00726 00738 00765* 00768* 00773* 00783 00788
00836 00991 01120* 01235 01266 01557 01581 01595
01606* 01611 01612 01613 01615 01617 01619 01624
01805 01937 02370 02418* 02445 02447 02549* 02555
02601 02659 03155* 03162* 03191 03224 03226 03228
03229 03231 03449* 03484* 03536* 04079* 04081* 04084*
04128 04130 04132 04423* 04433* 04434* 04870* 04925
04937 04938 04962* 05294* 05988 05999 06006 06050*
06052* 06061 06062 06401* 06578* 06588* 06644 06646
06690* 07250* 07353 07365 07366* 07371* 07375 07377
07441 07878* 08047 08625* 08636* 08646 08717 08729*
08736 08740 08742 08747 06575*
LIVER INJURIES,ANESTHETICS IN
00131* 00770* 00787 00790 00791 01165 02438 02451
04494* 05132 06059 07368* 08737 08748
LIVER INJURIES,ANTIBIOTICS IN
00113* 01167 01562 02363 02378 02386
LIVER INJURIES,CONTRACEPTIVE DRUGS IN
00772* 00774* 00777* 00778* 00784 01610 02430 03207
03222 04127 05277* 05281* 06034 06118 06407* 07386
08732* 06049*

LIVER INJURIES,DIETARY DEFICIENCIES IN
00117* 00124* 00125* 00126* 00701* 00767* 00825* 00828*
00829* 02473* 04502* 04502* 05279*

LIVER INJURIES,DRUG-INDUCED
00770* 00780 00781 00790 01534* 01578 01609 01614
01616 01623 02419* 02420* 02422 02444 02494 02699*
03448* 03467* 03484* 04270* 04271* 04424* 04928 04933
05380* 06053* 06566* 06606 07897* 07923 05969 02415*
LIVER INJURIES,ETHIONINE IN 06056* 06401*
02431

LIVER IRON METABOLISM
00132* 00997 01175 02000* 02391 02405 02663* 03161*
03209 03486* 03541* 03716 04100 04106 04960* 05174
05325 05961 06487 06496 06657 06924 07336 07433

LIVER IRON METABOLISM
CONTINUED
07437 07943 08023 08665 08707
LIVER LIPID METABOLISM
00100* 00109* 00117* 00121* 00126* 00130* 00133* 00157
00161 00166 00169 00172 00173 00191 00193 00712
00761 00769* 00828* 01121* 01135* 01136* 01138* 01544*
01618 01666 01737 01836 01922* 01928* 01968 01969
01972 01977 01985 02042 02346* 02364 02395 02416*
02428 02429 02431 02460* 02481 02626* 02648 02698*
02705* 02707* 02724 02733 02747 02806 02807 03192
03397 03447* 03535* 03536* 03542* 03543* 03548* 03569
03582 04098 04350 04402* 04404* 04420* 04434* 04443
04452 04458 04471 04472 04473 04477 04478 04870*
04905 04968 05276* 05285* 05301 05322 05337 05404*
05953 06055* 06401* 06574* 06603 06613 06615 07734*
07891* 07893* 07903* 07912 07927 08642* 08728* 08749
08794 08958
LIVER MAGNESIUM METABOLISM
01662 01962 06609
LIVER MANGANESE METABOLISM
04286
LIVER METABOLISM
00116* 00125* 00129* 00136* 00145 00152 00156 00158
00159 00163 00167 00170 00171 00176 00680* 00684*
00687* 00709* 00726 00748 00750 00759 00774* 00835
00899* 01019* 01029 01055 01124* 01130* 01142* 01146*
01147* 01160 01165 01168 01172 01174 01217* 01266
01541* 01543* 01587 01591 01621 01934 01942 02351*
02353* 02376 02408 02427 02601 02665 02698* 02700*
02704* 02705* 02706* 02707* 02708* 02711 02712 02713
02714 02719 02720 02721 02728 02834 03154* 03172*
03213 03235* 03237* 03484* 03532* 03534* 03538* 03539*
03540* 03542* 03544* 03545* 03546* 03547* 03548* 03552*
03553* 03561 03570 03579 03581 03591 03596* 03966
04093* 04114 04119 04148 04151* 04156* 04265* 04268*
04299 04323* 04404* 04405* 04407* 04409* 04410* 04413*
04414* 04419* 04426* 04436 04454 04465 04468 04469
04481 04834 04893 04901 04903 05110* 05112* 05113*
05274* 05276* 05279* 05282* 05283* 05284* 05285* 05304
05309 05314 05318 05319 05321 05326 05329 05333
05335 05342 05344 05354 05358 05907* 05953 05961
05990 06079* 06080 06108 06122 06411* 06468* 06470*
06521 06568* 06569* 06572* 06574* 06579* 06584* 06585*
06587* 06593* 06597* 06602 06610 06611 06616 06618
06627 06628 06629 06633 06636 06661 06664 07074
07228* 07231* 07232* 07258 07273 07279 07370* 07396
07784* 07871 07881* 07882* 07883* 07893* 07906 07910
07913 07923 07932 07955 08633* 08644 08659 08683
08685 08731* 08786* 08806
LIVER MICROORGANISMS
00731 00741 00806 01536* 01556 01607* 02372 02450
03126 03240* 04562 06021 06033 06594* 07240* 07259
07260 07280 07298 07354 07444 08679 08700 08745
LIVER MORPHOLOGY
00003* 00010* 00735 00775* 00778* 00779* 00782 01009*
01030 01200* 01590 01613 01674 01825 01832 02349*
02630 02631 03180 03186 03201 03222 03474 03570
04129 04130 04272* 04283 04423* 04438 04469 04532
04535 04899 04969 05099* 05100* 05124 05131 05141
05463 05908* 05947 06038 06066 06435 06440 06461
06644 06690* 06755 07294 07377 07420 07460 07741
07756 07771 07809* 07940 07981 08036 08666 08759
08790 08807
LIVER NECROSIS
04093* 05973 06687*
LIVER NEOPLASMS
00294 00680* 01137* 01224 01560 01568 01599 02402
02583 02634 02704* 02724 02729 02848 02851 03164*
03185 03452* 03533* 03566 03585 03592 03637 04090*
04117 04153* 04265* 04311* 04411* 04421* 04917 05266
05290* 05332 05349 06007 06620 06621 06622 06624
07245* 07259 07260 07275 07295 07342 07361 07388
08633* 08650 08685 08687
LIVER NEOPLASMS,BENIGN
00727 02366 03664 04083* 04108 04881 04894 06014
06038 06992 08699
LIVER NEOPLASMS,MALIGNANT
00213* 00734 00754 00756 00786 01580 01583 01605
01943 02010* 02366 02626* 02723 02725 02809 02852
02921 03171* 03197 03198 03203 03214 03402 03452*
03540* 03586 04090* 04099 04105 04108 04116 04155*
04210 04304 04413* 04869* 04871* 04872* 04878* 04909
04921 05101* 05385 05392* 05402* 05463 05610 05760
05851 05907* 05920* 05921* 05923* 05975 05987 05996
06008 06044 06075* 06409* 06570* 06603 07108* 07231*
07238* 07242* 07249* 07268 07281 07284 07292 07308
07313 07325 07344 07348 07355 07356 07358 07359
07362 07363 07378 07990* 08639* 08640* 08649 08677
08699 08710 08727 08819 05914*

LIVER NUCLEIC ACID METABOLISM
00016* 00064* 00117* 00144 00147 00162 00169 00170
00702* 00764 00786 01118* 01123* 01137* 01151 01156
01157 01159 01162 01555 01655* 01926* 01932 01933
LIVER NUCLEIC ACID METABOLISM
CONTINUED
01943 01949 01950 01955 01962 01964 01966 01981
02381 02419* 02460* 02713 02714 03273 03565 03566
03584 04417* 04437 04450 04455 04474 04949 05307
05308 05339 06404* 06426 06432 06580* 06622 06624
06635 06647 06648 07933 08731*
LIVER NUCLEIC ACID SYNTHESIS
07242* 07366*
LIVER NUCLEIC ACIDS
01144*
LIVER PATHOLOGY
00113* 00150 00158 00324 00686* 00688* 00691* 00698*
00710 00712 00713 00721 00759 00764 00766* 00779*
00782 00785 00790 00798 01242 01533* 01541* 01551*
01560 01574 01576 01580 01583 01606* 01616 01624
01652* 01724* 01781 01832 01960 02351* 02360 02378
02403 02406 02408 02409 02424 02436 02457* 02492
02495 02622* 02630 02641* 02665 02699* 02704* 02765*
02827 02834 02852 03160* 03170* 03176 03180 03183
03184 03185 03191 03192 03193 03194 03201 03208
03216 03224 03225 03232* 03238* 03246 03247 03249
03278 03286* 03449* 03452* 03575 03576 03578 03650
03669 03670 03671 04082* 04093* 04098 04099 04103
04108 04118 04119 04120 04130 04145 04286 04412*
04425* 04429* 04444 04496* 04555* 04582 04594 04870*
04885 04895 04899 04900 04902 04907 04922 04926
04927 04932 04934 04946* 04962* 04968 04969 04972
05068 05072 05091* 05101* 05115* 05117* 05283* 05299*
05380* 05414 05669* 05853 05910* 05930 05954 05957
05960 05961 05963 05964 05969 05973 05976 05979
05993 05994 06005 06051* 06058 06059 06063 06113
06120 06121 06159 06379 06380 06396* 06406* 06407*
06416 06451 06566* 06595* 06657 06662 06700 06701
06769 06782 07233* 07252* 07255* 07285 07306 07309
07329 07337 07340 07351 07361 07364 07377 07420
07421 07721* 07746 07758 08416 08623* 08641* 08644
08646 08659 08663 08667 08668 08683 08700 08705
08716 08725 08726 08729* 08734* 08737 08742 08745
08756* 08759 08779 08787* 08797 08807 08812 08819
08820 08821 08825* 08942
LIVER PERFUSION
00010* 00134* 00136* 00165 00168 00182* 00689* 00750
00753 00770* 01128* 01146* 01149* 01174 01540* 01575
01586 01592 01593 01594 01923* 01927* 01929* 01963
02348* 02425 02432 02557 02708* 02719 02721 02735
03155* 03478* 03533* 03537* 03550* 03555* 04114 04321*
04402* 04460 04519 04520 04536 04942 05176 05274*
05285* 05335 05350 05355 05358 05381* 05382* 06037
06063 06592* 06595* 06601 06616 06627 06628 06629
06632 06684* 06696 07289 07310 07322 07893* 07895*
07910 07918 07955 08635* 08724 08735
LIVER PHOSPHOLIPID METABOLISM
00117* 00121* 00151 00161 00168 01154 01969 02626*
02707* 03558 03559 05282* 05291* 05301 05404* 05953
06128* 06134* 06422 06424 06598* 06599* 06600* 06614
06615 07730* 07734* 07875 07926
LIVER PHYSIOLOGY
04912
LIVER PLASMA PROTEINS
02191* 02343* 02345* 02453* 02454* 02456* 02639 02721
06054*

LIVER PROTEIN ABSORPTION
07931
LIVER PROTEIN METABOLISM
00108* 00109* 00114* 00118* 00127* 00138* 00141* 00165
00172 00226* 00691* 00702* 00763 00771* 00915 01038*
01120* 01122* 01127* 01132* 01133* 01135* 01139* 01144*
01151 01153 01170 01538* 01555 01602 01619 01648*
01836 01946 01952 01957 01964 01970 02392 02394
02431 02451 02460* 02468 02484 02694* 02697* 02717
02721 03137 03249 03446* 03533* 03539* 03556* 03584
04098 04275* 04424* 04433* 04446 04456 04458 04475
04953 05278* 05288* 05334 05339 05355 05404* 05953
06023 06468* 06470* 06525 06567* 06577* 06579* 06580*
06604 06606 06707* 07317 07431* 07887* 07893* 07899*
08618* 08630* 08728* 08753*
LIVER PROTEIN SYNTHESIS
06646 07242*
LIVER PROTEINS
01823 01825 01981 06000
LIVER RADIOLOGY
SEE ALSO LIVER DIAGNOSIS
00204* 00222* 00223* 00243 00244 00245 00254 00260
00272 00273 00289 00290 00682* 00733 00735 00786
01195* 01200* 01224 01248 01253 01574 01595 01832
01920* 02009* 02010* 02029* 02032* 02049 02349* 02350*
02366 02377 02411 02630 02799 02809 02821 02835
02848 02854 03175 03216 03450* 03611* 03664 03670
03671 04092* 04096 04117 04210 04218 04520 04551*
04555* 04570 04574 04580 04875* 04926 04966 05068
05152 05376* 05402* 05414 05449 05487 05906* 05929
05993 05994 06044 06426 06459 06700 06701 06711*
06717* 06720* 07229* 07235* 07241* 07245* 07269 07294
07295 07435 07990* 07998* 08006* 08024 08654 08783*

LIVER RADIOLOGY
CONTINUED
08787*
LIVER REGENERATION
00110* 00125* 00130* 00140* 00144 00145 00159 00170
00201* 00689* 00702* 00757 00775* 01013* 01032 01118*
01123* 01132* 01137* 01142* 01156 01157 01161 01162
01166 01167 01624 01674 01920* 01936 01950 02419*
02490 02601 02730 03556* 03558 03559 03560 03561
03562 03568 03569 03571 03572 03573 03574 03592
04096 04116 04293 04401* 04418* 04421* 04423* 04427*
04433* 04438 04441 04458 04465 05109* 05296* 05301
05312 05327 05330 05343 05344 05346 05357 05953
05975 06023 06051* 06052* 06063 06115 06185 06419
06420 06426 06576* 06608 06618 06631 06639 06646
06647 06651 06665 07253* 07289 07308 07310 07366*
07591 07721* 07742 07746 07880* 07900* 07905 07919
07921 07922 07936 07937 07946 07953 08711

LIVER RETICULOENDOTHELIAL SYSTEM
00160 00272 01920* 01963 02391 02475* 02735 03227
03489* 03605 04157 04271* 04300 04417* 06576* 06665
07743 07990* 07770
LIVER RUPTURE
01557
LIVER SCAN
07229* 08006*
LIVER SECRETION
00115* 00694* 00736 02420* 02428 02834 04103 04459
04469 05338 07804
LIVER SERUM ENZYMES
SEE ALSO ALKALINE PHOSPHATASE
SEE ALSO LIVER DISEASE DIAGNOSIS
00110* 00137* 00140* 00201* 00202* 00211* 00222* 00232*
00234* 00239* 00259 00265 00267 00281 00494 00684*
00685* 00697* 00701* 00705* 00722 00774* 00777* 00778*
00787 00803 01195* 01206* 01209* 01218* 01221 01225
01247 01536* 01539* 01550* 01552* 01558 01567 01606*
01615 01619 01627* 01630* 01643 01937 01961 01967
02008* 02012* 02018* 02030* 02042 02056 02191* 02341*
02350* 02388 02389 02418* 02439 02441 02454* 02461
02500* 02556 02808 02813 02814 02829 02838 02842
02851 03131* 03186 03214 03215 03218* 03222 03233*
03237* 03246 03411 03615* 03633 03649 03650 03668
03690 03714 04137* 04159 04440 04545* 04861* 04949
05017 05259* 05266 05392* 05404* 05414 05424 05916*
05937 06030 06054* 06075* 06111 06595* 06652 06707*
06759 07252* 07256* 07368* 07390* 07391* 07403 07900*
07992* 08008* 08622* 08627* 08638* 08641* 08804
LIVER SERUM PROTEINS
04158 08774
LIVER STEROID METABOLISM
00130* 01559 01639 01923* 01941 01954 02388 03532*
03582 04442 05181 05352 05934 06433 06607 07440
07935
LIVER SURGERY
00110* 00129* 00140* 00144 00145 00159 00243 00306
00677* 00680* 00681* 00684* 00685* 00686* 00700* 00715
00717 00718 00719 00720 00739 00742 00743 00747
00754 00765* 00905 01013* 01162 01266 01536* 01541*
01546* 01549* 01560 01565 01568 01573 01575 01601
01620 01621 01658 01678* 01920* 02340* 02348* 02349*
02365 02369 02371 02375 02383 02407 02412 02445
02447 02490 02556 02630 02727 03160* 03162* 03163*
03164* 03169* 03173 03174 03175 03197 03203 03216
03226 03229 03352 03556* 04079* 04081* 04094* 04096
04116 04119 04120 04124 04128 04283 04300 04434*
04438 04465 04533 04864* 04870* 04890 04891 04894
04895 04899 04907 04909 04921 04926 04962* 04964*
04972 04983* 05121 05330 05331 05332 05345 05346
05574 05911* 05932 05935 05953 05955 05956 05962
05964 05966 05968 05975 05977 06001 06002 06017
06042 06057 06069 06106 06120 06447 06568* 06644
06647 06682* 06696 07240* 07248* 07250* 07279 07308
07323 07338 07342 07344 07359 07447 07742 07804
07878* 07915 07942 07946 08205 08622* 08624* 08625*
08629* 08636* 08666 08699 08714 08717 08725 08727
08736 08816

LIVER TRACE ELEMENT METABOLISM
00928 00997 01662 01957 01962 01980 02411 04286
04429* 04439 04868* 04886 05115* 06281 06411* 06528
07267 07304 07877* 08637* 05279* 06405*
LIVER TRANSPLANTATION
00139* 00681* 00686* 00687* 00706* 00715 00747 00753
01166 01549* 01565 01575 01584 01585 01586 01592
01593 01594 01595 02340* 02348* 02353* 02370 02407
02557 03155* 03162* 03167* 03182 03212 03458* 04321*
04428* 04480 04864* 04911 05096* 05331 05345 05346
05347 05348 05357 05955 05962 06016 06017 06069
06447 06568* 06570* 06586* 06594* 06612 07289 07727*
07896* 07915 07978 08724

LIVER TRAUMA
00680* 00725 00765* 00783 00956 01246 01576 01620
01621 02445 02447 03160* 03164* 03229 04079* 04128
04794 04921 04925 05018 05953 05966 06588* 06619
07250* 07538 07746 07939 08625* 08636*
LIVER TREATMENT
02442 02496 03160* 03181 03229 03535* 04079* 04092*
04118 04128 04318* 04942 05220 06029 06063 07299
07316 07321 07338 07350 07443 08717 08741
LIVER TUBERCULOSIS
06027

LIVER ULTRASTRUCTURE
00001* 00115* 00116* 00127* 00145 00149 00150 00151
00156 00160 00164 00166 00167 00168 00169 00172
00175 00260 00688* 00695* 00696* 00698* 00729 00736
00764 00766* 00767* 00768* 00769* 00770* 00772* 00773*
00774* 00784 00785 00791 00836 01014* 01026* 01030
01032 01144* 01154 01155 01157 01158 01159 01161
01551* 01572 01574 01583 01606* 01608 01625* 01635
01655* 01823 01825 01832 01833 01836 01838 01926*
01931 01949 01958 01966 01971 01974 02374 02405
02419* 02420* 02424 02457* 02475* 02486 02490 02618*
02639 02694* 02717 02718 02726 02728 02729 02852
03126 03167* 03185 03186 03187 03194 03204 03222
03227 03447* 03452* 03475 03558 03559 03562 03564
03569 03578 03581 03583 03584 03585 03586 03587
04105 04112 04129 04130 04272* 04281* 04285 04291
04292 04293 04308 04451 04453 04466 04470 04472
04887 05106* 05110* 05113* 05114* 05119 05120 05127
05128 05130 05145 05290* 05312 05336 06015 06023
06052* 06056* 06108 06115 06396* 06400* 06401* 06404*
06405* 06406* 06407* 06409* 06411* 06415 06416 06421
06425 06433 06436 06438 06451 06457 06470* 06572*
06575* 06578* 06631 06635 07249* 07260 07367* 07387
07427* 07487 07742 07743 07746 07747 07754 07755
07758 07764 07771 07936 07940 07941 07956 08628*
08663 08668 08670 08729* 08742 08756* 08759 05105*
LIVER UREA METABOLISM
00226* 00732 01145* 01150* 01973 04321* 05306
LIVER VITAMIN METABOLISM
06598*
LIVER ZINC METABOLISM
00928 01980 04429* 04868*
LIVER,AGE EFFECTS ON
00143 00695* 00796 01019* 01029 01130* 01135* 02492
03195 03475 03556* 04286 04427* 04437 04480 05100*
05109* 05912* 06435 06580* 06649 07243* 07881* 07916

LIVER,ALCOHOL EFFECTS ON
00147 00158 00173 00176 00701* 00768* 01121* 01164
01618 01648* 01700 01768 01921* 01925* 01972 02004*
02416* 02423 02427 02431 02435 02455* 02474* 02476*
02481 02492 02700* 02719 02811 03218* 03221* 03260*
03271 03447* 03464* 03545* 03572 03682 04100 04102
04125 04130 04150* 04151* 04156* 04163 04164 04308
04404* 04502* 04960* 04968 05145 05209 05276* 05291*
05669* 05934 05984 06053* 06065 06066 06092* 06098*
06100* 06108 06110 06117 06122 06125 06367 06578*
06629 06643 06780 07369* 07375 07382 07384 07433
07435 07440 07441 07453 07455 07456 07457 07463
07875 07877* 07880* 07894* 08669 08744 08782* 08788*
08796 08797 08799 08800 08804 07377
LIVER,AMEBIASIS EFFECTS ON
00723 00728 00824* 00926 01230 01554* 01601 01728*
01761 02433 03201 03216 03220* 04896 04930 04943
05044 05409* 07240* 07580 07634 08133 08624*
LIVER,DISEASES ASSOCIATED WITH
02403 02493 02495 03126 03199 03202 03216 03254
04920 05853 05927 05984 06043 07243* 07312 08631*
08661
LIVER,DRUG EFFECTS ON
00113* 00116* 00119* 00128* 00131* 00136* 00170 00766*
00780 00781 00784 00787 00835 00843 01127* 01133*
01134* 01140* 01143* 01147* 01148* 01149* 01151 01155
01170 01542* 01577 01578 01609 01614 01627* 01651*
01662 01926* 01930* 01940 01944 01951 01970 01971
01972 01975 01976 01985 02346* 02368 02370 02389
02415* 02420* 02429 02439 02451 02502* 02699* 02700*
02701* 02706* 03157* 03182 03211 03448* 03452* 03532*
03534* 03539* 03540* 03543* 03546* 03549* 03551* 03560
03561 03564 03566 03573 03574 03581 03583 03591
03600* 04080* 04132 04148 04271* 04408* 04409* 04424*
04441 04448 04457 04460 04462 04464 04470 04481
04494* 04497* 04519 04537 04893 04902 04941 04981*
05101* 05110* 05113* 05132 05276* 05279* 05281* 05283*
05287* 05302 05303 05315 05326 05334 05354 05381*
05930 05982 05998 06027 06043 06049* 06055* 06056*
06058 06064 06065 06079* 06143 06185 06404* 06433
06473* 06566* 06578* 06584* 06615 06617 06620 07232*
07233* 07258 07285 07297 07353 07370* 07374 07376
07378 07379 07380 07381 07385 07386 07388 07450
07764 07895* 07896* 07897* 07912 07917 07921 07922
07929 07930 07932 07937 07950 07957 08682 08720

LIVER,DRUG EFFECTS ON
CONTINUED
08734* 08737 08738 08739 08741 08743 08746 08818
08824 08825*
LIVER,DRUG TREATMENT OF
00692* 00724 00746 00760 00766* 00799 00819* 00830
00832 00840 01554* 01560 01601 01622 01625* 01630*
01637 01645 01657 01971 02052 02355 02363 02364
02396 02433 02496 03182 03199 03237* 03455* 04147
04148 04441 04886 04893 04902 04923 04928 05952
06120 06185 06228* 06575* 07296 07298 07299 07360
07366* 08416 08626* 08688 08723
LIVER,EXPERIMENTAL STUDIES OF
05314 07879*
LIVER,FATTY
00109* 00126* 00172 00173 00558 00671 00701* 00712
00759 00761 00766* 00769* 00773* 00828* 00829* 01543*
01576 01618 01674 01921* 01925* 01972 02042 02097*
02346* 02364 02416* 02417* 02431 02435 02475* 02493
02709* 02806 02807 02812 02814 03187 03192 03535*
03545* 03569 03580 03706 04098 04102 04109 04130
04151* 04280* 04502* 04562 05105* 05209 05279* 05323
05963 05973 06021 06026 06055* 06105 06122 06125
06132* 06172 06598* 06651 06746 07366* 07395* 07425*
07446 07448 07455 07456 07463 07464 07877* 08642*
08643* 08728* 08731* 08740 08821 08824
LIVER,HORMONAL CONTROL OF
00016* 00111* 00114* 00116* 00130* 00137* 00154 00162
00170 00692* 00740 00777* 00789 00825* 00899* 01117*
01122* 01125* 01128* 01129* 01131* 01132* 01134* 01136*
01139* 01140* 01141* 01147* 01155 01157 01164 01168
01170 01175 01610 01614 01927* 01974 01975 01979
02601 02695* 03237* 03546* 03565 03582 04323* 04410*
04442 04443 04452 04460 04462 04498* 04883 04893
04903 04961* 05285* 05288* 05294* 05305 05306 05339
05342 05965 06052* 06433 06590* 06596* 06619 06634
07378 07928 07958* 07258
LIVER,HORMONAL TREATMENT OF
00789 00815

LIVER,NERVOUS CONTROL OF
00739 01013* 03557 03600* 05284* 05986 07809*
LIVER,RADIATION EFFECTS ON
02722 03578

LIVER,TOXIC EFFECTS ON
00109* 00113* 00118* 00121* 00124* 00126* 00131* 00146
00159 00172 00691* 00695* 00700* 00701* 00704* 00712
00761 00766* 00768* 00769* 00770* 00771* 00773* 00774*
00775* 00776* 00777* 00779* 00780 00781 00782 00785
00786 00788 00789 00824* 00829* 00833 00836 00915
01121* 01167 01173 01218* 01226 01534* 01541* 01606*
01608 01609 01611 01612 01613 01615 01616 01619
01624 01700 01768 01772 01924* 01926* 01937 01944
01950 01951 01960 01971 01974 02037 02376 02417*
02419* 02420* 02423 02424 02425 02427 02428 02429
02431 02434 02436 02438 02444 02446 02448 02449
02451 02476* 02494 02601 02710* 02711 02714 02717
02719 02722 02734 02793 02805 03165* 03205 03207
03211 03215 03218* 03222 03223 03224 03227 03228
03230 03231 03246 03455* 03563 03567 03578 03579
03580 03591 03668 03690 03803 04125 04129 04132
04143 04270* 04271* 04291 04318* 04401* 04410* 04433*
04453 04454 04455 04496* 04913 04929 04933 04935
04940 05132 05209 05279* 05294* 05299* 05306 05308
05311 05312 05349 06034 06050* 06051* 06052* 06058
06067 06117 06405* 06419 06420 06425 06426 06578*
06610 06645 06646 06651 07232* 07366* 07367* 07374
07379 07381 07382 07383 07385 07387 07388 07548
07721* 07747 07754 07758 07762 07778* 07880* 07889*
07891* 07897* 07905 07923 07930 07934 08729* 08733*
08738 08739 08741 08742 08743 08744 08746 08748
08749 08750 08811 08797
LIVER,VITAMIN B12 IN
00120* 04469

LUPOID HEPATITIS
01562 01563 01579 02389 02439 02441 02811 06033
06081 06095* 07287 07373 07733* 08693 08695
LYMPH
00025* 00041 00062* 00157 00449 00553 00821* 01021*
01453* 02326* 02477* 02828 03476 03891 03914 04288
04309* 04313* 04385* 04518 04633 04641 04964* 05139
05166* 05170 05259* 05318 05527 05728 06028 06045
06414 06478* 07423* 07601 07973* 08414
LYMPH CIRCULATION
01428* 01652*
LYMPH NODES
00367* 00535 00604 00624 00871 00903* 00987 01384
01569 02278 02426 02972 02993 03821 03894 06362
06460 06482 06898 06921 07622 07984 08009*
LYMPH NODES,MESENTERY
01015* 01357* 01827 02177 02933 02940 03050 04213
05175 05371 06992 07423* 07581 05731
LYMPHADENITIS,MESENTERY
03994
LYMPHANGIECTASIS
01431
LYMPHANGIOMA
03905 04771
LYMPHATIC SYSTEM
02471* 05609 06697 06970 07094 07163 07402 07443
LYMPHOGRAPHY
00551 01428* 02046 05408 08009* 08059
LYMPHOGRAPHY IN CANCER DIAGNOSIS
02845 03854 08050
LYMPHOGRAPHY,GASTROINTESTINAL
03487* 04586
LYMPHOGRAPHY,LARGE INTESTINE
00252
LYMPHOGRAPHY,RECTUM
02278
LYMPHOMA
00526* 00553 01725* 01758 02241 02245 02249 02596
02845 02954 03050 03822 03864* 04099 04198* 05022*
05061 05575 06236* 08166 08236
LYMPHOSARCOMA
00252 00381 00414 00450 00511 01323 01332 01758
02126 02284 02852 02972 03859 08216

MACROGLOBULINEMIA
01429*
MAGNESIUM
01096* 04453 06413*
MAGNESIUM ABSORPTION
00465 04265*
MAGNESIUM METABOLISM
06924
MAGNESIUM METABOLISM,LIVER
01662 01962 06609
MALABSOPRTION,DISEASES ASSOCIATED WITH
04200*
MALABSORPTION
SEE ALSO SMALL INTESTINE
00194 00448 00538 00551 01062 01425 01432 01436
01437 01440 01444 01508 01760 01762 01848* 01858*
01865* 02149* 02151* 02559 02825 02844 02906* 02985
03051 03442 03814 03963 04191* 05058 05059 05060
05728 05733 06326 06388 06673 06714* 06718* 07076
07575 07585 07639 08164 08421
MALABSORPTION DIAGNOSIS
00220* 00258 00284 00286 00527* 00541 00550 00557
00657 01197* 01215* 01229 01434 01443 01803 01841*
02025* 02027* 02107* 02148* 02179 02241 02249 02861
02906* 03040* 03044* 03200 03720 03959* 03962* 03967
04314* 04543* 04566 04567 04591 04749* 04756 04830*
05429 05600* 05602* 05727 05732 05735 05736 05881*
06740 07061* 07063* 07065* 07067* 07079 07080 07086
07095 08411* 08415 08428
MALABSORPTION DIAGNOSIS,BIOPSY IN
00555 03058 03966 05446 05721*
MALABSORPTION DIAGNOSIS,D XYLOSE IN
00262 00554 00555 01215* 02149* 02815 03044* 03048
03259* 03425 04201* 05024* 07064*
MALABSORPTION DIAGNOSIS,TOLERANCE TESTS IN
00540 02024* 04199* 07061* 07067*
MALABSORPTION EPIDEMIOLOGY
00537 00544 04749* 08410*
MALABSORPTION ETIOLOGY
00442 00449 00520* 00529* 00533 00535 00536 00537
00539 00541 00542 00543 00546 00548 00550 00552
00554 00555 00557 00888* 01183* 01426* 01428* 01430*
01434 01443 01745 02107* 02237* 02241 02242 02243
02251 02374 03041* 03042* 03045* 03059 03200 03445*
03899 03962* 05719* 05727 05736 06944* 07070 07073
07085 07086 07091 07226* 07579 07622 08252* 08425
MALABSORPTION IMMUNOLOGY
02239* 06349 07066*
MALABSORPTION IN CHILDREN
00220* 00465 00544 00545 00546 00548 00550 00558
01433 01435 01441 01548* 01756 01803 02238* 02243
02248 02560 03043* 03054 03057 03132* 03720 03871
03966 04750* 04756 05726 05727 05730 06385 07062*
07064* 07066* 07071 07094 07622 08410* 08419 08428
08969
MALABSORPTION PATHOPHYSIOLOGY
02250 04751* 05881* 06334
MALABSORPTION TREATMENT
00531 00534 00543 00898* 01443 01803 02146* 02304*
02980 03043* 03048 04359* 04750* 04752* 05198* 05727
05736 06385 06485 06941* 06971 07082 07085 07089
07090 07095 08424

MALABSORPTION TREATMENT,ANTIBIOTICS IN
00555 00556 00557 02242 03058 05732 07092
MALABSORPTION TREATMENT,DIETARY
00036 00446 00551 00557 01426* 01430* 01431 01745
03049 04199* 05718* 05726 08409*
MALABSORPTION TREATMENT,FOLIC ACID IN
00555 00556 03058 07081
MALABSORPTION TREATMENT,VITAMIN B12 IN
03814
MALABSORPTION-INDUCED BONE DISEASES
00547
MALABSORPTION,AGE FACTORS IN
00526* 07064*
MALABSORPTION,ANEMIA IN
00552 00557 00558 02015* 02586 05729 07081
MALABSORPTION,BIOCHEMICAL DIAGNOSIS OF
00529* 05726 07527*
MALABSORPTION,BLIND LOOP-INDUCED
03047
MALABSORPTION,BLIND LOOP-INDUCED SECONDARY
00995 01037* 01439 02179 02242 03043* 04751* 05695
MALABSORPTION,BLIND-LOOP INDUCED SECONDARY
06478* 07083
MALABSORPTION,DIETARY DEFICIENCIES IN
00195
MALABSORPTION,DISEASES ASSOCIATED WITH
00544 00547 00549 00555 00556 00560 01379 01841*
02236* 02242 02595 03200 03959* 03967 04567 05036
05520* 07071 08419
MALABSORPTION,GASTRECTOMY-INDUCED
00360* 00368* 00386 00389 00428 00499 01313* 01318*
01398* 02025* 02102* 02125 02146* 02906* 03959* 04330
05665* 05723 06885
MALABSORPTION,GASTROINTESTINAL
08424
MALABSORPTION,INTESTINAL RESECTION-INDUCED SECONDARY
00446 00466 00527* 00529* 00916 01354* 01356* 01361
01371 01372 01373 01374 01426* 01431 02154 02980
05612 06941* 08426
MALABSORPTION,MICROORGANISMS IN
02242 03967 06339 07088
MALABSORPTION,PARASITIC DISEASE-INDUCED SECONDARY
00554 01351* 01808 03960* 04201* 05058 05059 05060
05084 07064* 07726* 08412*
MALABSORPTION,PRIMARY
00451 00464 00526* 00527* 00528* 00530* 00531 00532
00540 00541 00544 00547 00549 00555 00556 00557
00559 01183* 01215* 01427* 01429* 01430* 01441 01443
02235* 02237* 02239* 02246 02763* 02810 03039* 03040*
03045* 03046 03050 03053 03054 03056 03057 03058
03059 03391 03871 03959* 03964 04838 05036 05429
05446 05718* 05721* 05727 05729 07062* 07075 07078
07081 07082 07088 07092 07096 08409* 08413* 08423
08424 08429
MALABSORPTION,SECONDARY
00526* 00639* 01435 02236* 02244 03022 03041* 03405
05725 05852 08308 08415 08424
MALABSORPTION,SURGERY-INDUCED SECONDARY
05637
MALABSORPTION,VITAMIN DEFICIENCIES IN
00393 00552 00560 03967 06475*
MALIGNANT ABDOMEN NEOPLASMS
06273 07642 09008 09015

MALIGNANT ANUS NEOPLASMS
00615 03077* 04004 05769 07124

MALIGNANT BILIARY TRACT NEOPLASMS
00213* 01678* 01699 02365 03291 03303 03310 04185
05003 05004 05010 06126* 06131* 06175 08576 02498*
MALIGNANT DUODENUM NEOPLASMS
05641 06967 08295 08305 08320
MALIGNANT ESOPHAGUS NEOPLASMS
00349 00423 01279* 01292 02062* 02092 02804 02871*
02883 02890 02891 02896 02954 03472 03733* 03741
03742 03778 04054 04542* 04602* 04611 04614 04615
04619 04620 05048 05275* 05470* 05471* 05473* 05497
05501 05511 05563 06791* 06792* 06797* 06798* 06801
06804 06806 06813 06814 06829 06830 06847 06848
06849 06854 07973* 08068* 08070* 08071* 08072* 08075*
08088 08103 08104 08106 08120 08121 08122 08242
MALIGNANT GALLBLADDER NEOPLASMS
00847* 04108 04186 04188 04698 05608 06149 06166
07501 08835*
MALIGNANT GASTROINTESTINAL NEOPLASMS
00942 00967 00996 01725* 01800 02010* 02786 03371
03393 03891 04198* 04225 05022* 05023* 05046 05061
05563 05636 06236* 06247 06254 06288 06290 07108*
07532* 07534* 07644 08446* 08591 08945 08958
MALIGNANT LARGE INTESTINE NEOPLASMS
00252 00575 00579 00584 00593 00596 00599 00601
00611 00612 00623 01448* 01449* 01451* 01497* 01758
02250* 02274 02284 03061* 03080* 03087 03114 03393
03413 03970* 03971* 04015 04036 04195* 04208* 04212

MALIGNANT LARGE INTESTINE NEOPLASMS
CONTINUED
04218 04547* 04759* 04760* 04791 04797 04799 04800
04812 05023* 05393* 05744* 05749 05751 05760 05789
05790 05795 05796 05799 05810 05838 05839 05843
05905* 06344 06984 07101* 07102* 07119 07124 07136
07137 07141 07150 07155 07166 07171 07185 07192
08430* 08434* 08446* 08450 08458 08468 08480 08489
08529 08544 08545 08559 08902
MALIGNANT LIVER NEOPLASMS
00213* 00734 00754 00756 00786 01580 01583 01605
01943 02010* 02366 02626* 02723 02725 02809 02852
02921 03171* 03197 03198 03203 03214 03402 03452*
03540* 03586 04090* 04099 04105 04108 04116 04155*
04210 04304 04413* 04869* 04871* 04872* 04878* 04909
04921 05101* 05385 05392* 05402* 05463 05610 05760
05851 05907* 05920* 05921* 05923* 05975 05987 05996
06008 06044 06075* 06409* 06570* 06603 07108* 07231*
07238* 07242* 07249* 07268 07281 07284 07292 07308
07313 07325 07344 07348 07355 07356 07358 07359
07362 07363 07378 07990* 08639* 08640* 08649 08677
08699 08710 08727 08819 05914*

MALIGNANT MESENTERY NEOPLASMS
02241
MALIGNANT PANCREAS NEOPLASMS
00655 01509 01774 02005* 02758* 02921 03138 03718
04051* 04054 04058 04185 04208* 04298 04553* 04844
04848 04850 06167 06295 07202 07209 07292 08565*
08567' 08588 08671 08983 05867
MALIGNANT RECTUM NEOPLASMS
01497* 02266 02272 03061* 04036 04777 04791 04801
04802 04803 05088 05393* 05531 05749 05762 05769
05799 06881 07101* 07127 07143 07169 07174 07180
08194 08436* 08484 08488 08526
MALIGNANT SALIVARY GLAND NEOPLASMS
00290 02571 04297 05032* 06230* 06801 08930 08995
MALIGNANT SMALL INTESTINE NEOPLASMS
00450 00462 00467 00526* 00979 01000 01199* 01360
01364 01380 01384 01758 02160 02162 02176 02229
02245 02774 02957* 02968 02972 02982 03038 03121
03413 03864* 03885 03886 03894 03908 03913 04289
04691 04703 05023* 05596* 05602* 05621 05626 05630
05639 05652 05658 05681 06344 06957 06984 06986
07534* 08259 08269 08270 08285 08300 08305 08323
05610

MALIGNANT STOMACH NEOPLASMS
00241 00303 00364* 00367* 00370* 00381 00382 00384
00388 00414 00424 00427 01312* 01321* 01323 01324
01332 01402 02005* 02013* 02126 02129 02131 02133
02134 02135 02847 02896 02922 02933 02934 02935
02936 02937 02938 02939 02940 02941 02942 02943
02944 02945 02948 02950 02954 02955 03614* 03715
03718 03741 03798* 03800* 03802* 03803 03804 03805
03806 03812 03817 03821 03822 03838 03840 03845
03860 03862 03932 04274* 04305 04544* 04584 04627*
04635 04652 04654 04657 04659 04660 04661 04662
04663 04664 04665 04668 04669 04670 05023* 05088
05129 05275* 05401* 05501 05514* 05518* 05522* 05523*
05534 05536 05537 05539 05540 05542 05547 05550
05559 05560 05563 05564 05585 05674 06344 06737
06792* 06860* 06861* 06870 06871 06873 06875 06876
06877 06881 06886 06889 06893 06896 06899 06907
06919 06921 06923 06926 06927 06929 06932 06936
07045 07516 07534* 08070* 08137* 08150 08163 08166
08170 08171 08173 08177 08183 08198 08207 08219
08222 08227 08230 08232 08234 08237 08238 08240
08241 08242 08323 08902 08974 02610

MALLORY-WEISS SYNDROME
04542* 05484 06810 06841 08274 02089
MALNUTRITION
00127* 00194 00389 00545 00556 00558 00759 00935
00990 01438 01440 01444 01755 01809 02435 02473*
02546* 03151 03333 03408 03413 03425 03442 03899
04109 04525 05039 06276 06316 06359 07091 07226*
07300 07545 07575 07602 07659 08417
MANGANESE ABSORPTION
06562
MANGANESE METABOLISM,LIVER
04286
MANOMETRY,ESOPHAGUS
00049* 00233* 00313* 00314* 06794* 06799* 08078*
MARASMUS
05844
MARKER STUDIES
00029* 00030* 00146 00207* 00268 00293 00332 00518
00598 00599 00603 00786 00872 00949 01012* 01052
01201* 01237 01244 01263 01265 01271 01308* 01437
01471 01566 01717 01823 02044 02046 02048 02178
02327 02350* 02756* 02759* 02773 02774 02793 02803

MARKER STUDIES
CONTINUED
02805 02820 02821 02834 02846 02956 03121 03180
03306 03433 03484 03624 03662 03671 03676 03688
03696 03698 03710 03712 03713 03727 03742 03743
03872 03887 03891 03907 03930 03957 03983 03999
04027 04039 04102 04117 04187 04234 04285 04340
04435 04618 04761* 04997 05012 05155* 05321 05412
05423 05504 05513* 05587 05989 06146 06186 06718*
07110 07364 07973* 08573 08790
MARKER STUIDES
03086
MECKELS DIVERTICULUM
00250 00459 00939 01258 01360 01362 01382 01479
01811 01813 02158 02164 02172 02173 02181 02798
02969 02971 02974 02978 02981 02989 02990 02991
03872 03874 03877 03900 04677 05610 05614 05648
05781 06139* 06278 06951 06978 06993 07133 08249*
08264 08279 08298 08302 08322
MECONIUM ILEUS
04838
MEDIA,CONTRAST
06171 06706 06754 06758 06784 07505 07812*
MEDICATIONS IN TREATMENT OF PEPTIC ULCERS
07043
MEDICATIONS IN TREATMENT OF ULCERATIVE COLITIS
04828 07188
MEGABOWEL
00524 00650
MEGACOLON
00598 00603 00619 00626 00627* 01293 01456 01804
02287 02299 03100 03985 04011 04706 04778 04790
04806 05399* 05743* 05746* 05748 05821 06502* 07123
08438* 08445* 08463 08482 08490 08498
MEGAESOPHAGUS
02080 03777 05511 08463
MELANOSIS COLI
02286 03705
MELENA
00456 01762 03151 03652 03705 03882 03900 03937
04108 04625* 04679 05578 05750 06120 06839 07026
07028 07534* 08900
MEMBRANE,CELL
01855
MEMBRANE,PLASMA
01828
MENETRIERS DISEASE
00403 01325 03813 08228
MERCURY
02805

MESENTERY
02178 03377 06950 07739
MESENTERY ANGIOGRAPHY
00214* 00456 03637 03698 03872 04250 06101* 06341
07291 07995* 08855
MESENTERY ANOMALIES
08313 08940
MESENTERY CIRCULATION
00207* 00577 00691* 00886* 01377 01467 01483 01605
01724* 01799 01835 02174 02572 02621* 02997 03353
03368 03391 03603* 04177* 04506* 04521 04697 05378*
05625 05738* 06101* 06303 06353 06683* 06704 07637
07988 08244* 08432* 08713 08994
MESENTERY CYSTS
02145* 03352 07694
MESENTERY DEVELOPMENT
01015* 08940
MESENTERY DIAGNOSIS
00214* 00456 03418 03698 03872 04250 04697 05642
07694 07995* 08855
MESENTERY DISEASES
00925 01479 04506* 04547* 05085
MESENTERY HISTOLOGY
01015*
MESENTERY INJURIES
00939 05642 06316
MESENTERY LYMPH NODES
01015* 01357* 01827 02177 02933 02940 03050 04213
05175 05371 06992 07423* 07581 05731
MESENTERY LYMPHADENITIS
03994
MESENTERY NEOPLASMS
08486 09011
MESENTERY NEOPLASMS,BENIGN
03418 08523
MESENTERY NEOPLASMS,MALIGNANT
02241
MESENTERY RADIOLOGY
00214* 00456 03418 03698 03872 04250 05642 05924*
07694 07995* 08855
MESENTERY SURGERY
01751 02598 03352 03418 05624 07694 08523
MESENTERY VASCULAR DISEASES
00886* 00901* 00923 00931 00952 00962 00968 01355*
01799 02145* 02282 02572 03324* 03325* 03353 03418
03675 04010 04250 05378* 06054* 06252 06317 06977
06980 07542 07583 07628 08280 08452 08891*
METABOLIC BALANCE STUDIES
02665 05727 05841
METABOLIC CHANGES IN CANCER
02101*
METABOLIC CHANGES IN CIRRHOSIS
00173 00709* 00832 00842 00899* 01047* 01206* 01559
01590 01647* 01648* 01649* 01654* 01655* 01664 01674
01976 02004* 02004* 02014* 02019* 02236* 02342* 02382
02387 02460* 02472* 02483 02484 02485 02486 02487
02553* 02709* 02797 02812 03178 03236* 03249 03259*
03261* 03273 03486* 04104 04135* 04157 04158 05325
05414 06067 06093* 06097* 07424* 07442 08786* 05353
METABOLIC CHANGES IN HEPATITIS
01206* 01538* 01648* 01922* 01976 02004* 02014* 02019*
02342* 02382 02387 02452* 02453* 02460* 02485 02812
03178 03235* 03236* 03249 03633 04137* 05425 08776
METABOLIC CHANGES IN LIVER DISEASES
02056 02387 02391 02395 04905 07290 08618*
METABOLIC CHANGES IN PANCREATITIS
03148* 04077
METABOLIC CHANGES IN PEPTIC ULCERS
00476* 00481* 02345* 05691
METABOLIC CHANGES IN ULCERATIVE COLITIS
01449* 04042* 05841 08548*
METABOLIC CHANGES,GASTRECTOMY-INDUCED
00356* 00368* 01313* 01318* 02125 02682* 03959* 04394
04645 04843 05519* 06878 08164
METABOLIC EFFECTS OF MICROORGANISMS
00985 01185* 01439 01603 01624 01731* 01795 01993
01995 02204 02362 02434 02739* 02754 04007 04031
04241 04526 04761* 06319 07255*
METABOLIC TOXINS OF MICROORGANISMS
01749 01762 01793 01794 01796 01926* 02603 04241
07255* 07636
METABOLISM
01981

METABOLISM IN CIRRHOSIS
02694*
METABOLISM IN CIRRHOSIS,ELECTROLYTE
00818* 00832 01654* 01662 01663 01669 04980 07438
07442
METABOLISM IN CIRRHOSIS,WATER
00830 01650*
METABOLISM IN GASTROINTESTINAL TRACT,ELECTROLYTE
04349* 05372
METABOLISM IN PANCREATITIS,ELECTROLYTE
07195*
METABOLISM,ACID
01981
METABOLISM,ALCOHOL
06521
METABOLISM,AMINO ACID
00127* 00152 00162 00165 00481* 00548 00990 01111*
01133* 01144* 01150* 01159 01169 01589 01647* 01741
01803 01845* 01917 01935 01948 01956 01966 01973
01975 02363 02573 02682* 02713 02714 02723 02725
03235* 03514* 04261 04325 04347* 04349* 04367 04453
04485* 05163* 05175 05262* 05278* 05350 05371 06646
07068* 07199 07231* 07264 07527* 07868* 07920 08287
08678 08680 08709 08728*
METABOLISM,BILE
01065 01922* 03532* 04459 04461 04472 05014 05286*
05334 06178 06581* 06582* 07525* 07914
METABOLISM,BILE ACID
01439
METABOLISM,BILIRUBIN
06593* 08719
METABOLISM,CALCIUM
02327 03801* 05372
METABOLISM,CANCER
05915* 06378
METABOLISM,CARBOHYDRATE
00004* 00012* 00075* 00076* 00356* 00368* 00469* 00531
00562* 01040* 01180* 01181* 01523 01614 01627* 01725*
01741 01918 01943 02005* 02304* 02570 02593 02668
03053 03137 03259* 05351 05353 05735 05818 05877
05998 06172 06556 06637 06668* 06673 07958* 07962*
08605 08786*
METABOLISM,CATECHOLAMINE
01956 05691
METABOLISM,CHLORIDE
08363
METABOLISM,CHOLESTEROL
00434* 02235* 06143 07901* 08882 08929
METABOLISM,COPPER
04877* 06491

METABOLISM,DRUG
00183* 00985 01891* 07871
METABOLISM,DRUG EFFECTS ON
00188
METABOLISM,ELECTROLYTE
00068* 00097* 00476* 00674 00695* 00955 01126* 01141*
01186 01326 01367 01656 01776 01840* 02130 02154
02247 02310 02328 02388 02470* 02578 02592 02594
02686 02796 03148* 03362 03377 03502 03869* 04838
04971 05159* 05791 05841 06494 06542 06626 06811
06979 07172 07434 07570 08393 08622* 08686
METABOLISM,FAT
02304* 05184 05373
METABOLISM,FATTY ACID
01922* 05301 06045 06603 06628 07888*
METABOLISM,GLUCOSE
01965 04349* 04454 05239 07457 07910 08793
METABOLISM,HEMOGLOBIN
00132*
METABOLISM,HORMONE
01172
METABOLISM,IRON
01442 02191* 05268 06488 06836 07234*
METABOLISM,LIPID
00036 00184* 00186 00189 00191 00657 00893* 01051
01357* 01719 01809 01853 01985 01990 01997 02304*
02648 02665 02666 02734 02747 02801 03049 03137
03548* 03596* 04399 04559 04832 04843 05166* 05351
05364* 05869 05878 06108 06172 06256 06436 06485
06522 06642 06878 07337 07493 07753 07867* 07908
METABOLISM,MAGNESIUM
06924
METABOLISM,MOLYBDENUM
04877*
METABOLISM,NUCLEIC ACID
00063* 00095* 00098* 01007* 01992 01996 01998 03594*
04239 05720* 06540
METABOLISM,PHOSPHOLIPID
01112* 01719 04276* 04308 06065
METABOLISM,POTASSIUM
07910
METABOLISM,PROTEIN
00188 00197* 00531 01023* 01169 01426* 01427* 01741
02125 02304* 02554* 02665 03042* 03386 03497* 03632
04228 04313* 04842 05359* 05442 05734 06260 06459
06637 06641 07830 08287 08680 08681
METABOLISM,STEROID
01176* 01184 06602
METABOLISM,SULFUR
01089*
METABOLISM,TRACE ELEMENT AND MINERAL
00688* 01047* 01267 01338 06099* 06924 07783* 08776
08414

METABOLISM,VITAMIN
01066
METABOLISM,WATER
02578
METABOLISM,ZINC
06099* 06924
METABOLITES,URINARY BILE
00694* 01711 08769
METABOLITES,URINE
05691
METABOLSIM,TRACE ELEMENT AND MINERAL
01931
METASTATIC CANCER
00219* 00290 00410 00422 00462 00575 00577 00604
00605 00609 00624 00643* 00656 00683* 00684* 00704*
00754 00789 00867 00880 01195* 01224 01282 01369
01384 01448* 01480 01503* 01566 01569 01605 01609
01735* 02005* 02010* 02029* 02105* 02145* 02152 02162
02177 02269 02272 02278 02366 02583 02610 02787
02809 02852 02891 02900* 02903* 02921 02934 02936
02940 02941 02945 02950 02955 02968 03077* 03087
03198 03203 03393 03610* 03741 03817 03821 03845
03880 04004 04058 04096 04105 04112 04116 04207*
04218 04222 04549* 04553* 04562 04574 04635 04661
04759* 04921 05332 05385 05397* 05423 05463 05550
05610 05751 05760 05765 05817 05851 05876 05914*
05921* 05923* 05975 06149 06166 06295 06860* 06875
06876 06881 06889 06936 07108* 07171 07174 07248*
07308 07363 07523* 07973* 08165 08189 08198 08218
08232 08237 08300 08480 08509 08534 08545 08942
08958 08995
MICROOGRANISMS,LARGE INTESTINE
06243
MICROOGRANISMS,SMALL INTESTINE
06243
MICROORGANISMS
SEE ALSO AMEBIASIS
SEE ALSO CHOLERA
SEE ALSO GNOTOBIOSIS
SEE ALSO LEPTOSPIROSIS

MICROORGANISMS
CONTINUED
SEE ALSO SALMONELLOSIS
SEE ALSO SHIGELLOSIS
00883* 01661 02397 02405 02410 03316* 03384 05368*
05566 05739* 05855 05872 06127* 06373 06397* 06525
07098* 07556
MICROORGANISMS IN CIRRHOSIS
00824*
MICROORGANISMS IN GASTRECTOMY COMPLICATIONS
00363* 08134*
MICROORGANISMS IN HEPATITIS
00813 01641
MICROORGANISMS IN JAUNDICE
05944
MICROORGANISMS IN MALABSORPTION
02242 03967 06339 07088
MICROORGANISMS IN ULCERATIVE COLITIS
01491* 04823
MICROORGANISMS,ABDOMEN
01778
MICROORGANISMS,BILE
00896* 01620 02501* 02505* 06182 06238*
MICROORGANISMS,BILIARY TRACT
00703* 01556 02550* 06127* 06151 07518
MICROORGANISMS,ESOPHAGUS
05495 08086
MICROORGANISMS,GASTROINTESTINAL
00183* 00559 00612 00752 00894* 00897* 00935 00965
00970 00971 00973 00974 00985 01004 01185* 01216*
01349* 01432 01439 01454* 01455 01474 01731* 01750
01762 01765 01783 01784 01785 01793 01794 01795
01796 01797 01801 01993 02505* 02543* 02547* 02613
02754 02755 02840 03359 03361 03367 03433 03476
03606 03607 03697 04214 04226 04287 04514 04515
04760* 05037 05038 05062 05067 05370 05374 05459
05842 06224* 06247 06258 06270 06271 06272 06274
06323 06347 06349 06388 06390 06694 06702 07162
07164 07309 07547 07563 07574 07576 07580 07585
07588 07592 07607 07610 07668 07729* 07737 08916
08922 08944 08951 08957 08966 08975 08976 08981
MICROORGANISMS,LARGE INTESTINE
00630* 00824* 00927 00948 01491* 01729* 01776 02267
02362 02606 02739* 03059 03099 03111 03199 03349
03390 03429 03607 03711 04259 04295 04514 04527
04563 04761* 05067 05079 05363* 05368* 05739* 05772
05820 06263 06300 06390 06443 06444 06445 06446
06448 06454 06455 06581* 06582* 06680 06752 06753
06776 06777 07567 07568 07594 07612 07664 07667
07669 07670 07671 07672 07673 07674 07675 07676
07677 07678 07679 07680 07681 07682 07683 07684
07686 07687 07688 07689 07690 07691 07701 07702
07704 07738 07740 07749 07759 07982 08029 08039
08456 08487 08530 08532 08990 08992 09002 09003
09009 09018 09021 09023
MICROORGANISMS,LIVER
00731 00741 00806 01536* 01556 01607* 02372 02450
03126 03240* 04562 06021 06033 06594* 07240* 07259
07260 07280 07298 07354 07444 08679 08700 08745
MICROORGANISMS,METABOLIC EFFECTS OF
00985 01185* 01439 01603 01624 01731* 01795 01993
01995 02204 02362 02434 02739* 02754 04007 04031
04241 04526 04761* 06319 07255*
MICROORGANISMS,METABOLIC TOXINS OF
01749 01762 01793 01794 01796 01926* 02603 04241
07255* 07636
MICROORGANISMS,NORMAL
02739*
MICROORGANISMS,RECTUM
06263 08949
MICROORGANISMS,SMALL INTESTINE
00028* 00432* 00529* 00530* 00897* 01729* 01776 02739*
03047 03059 03349 03390 03429 03607 03711 03903
04223 04224 04226 04259 04295 04307 04514 04686
04700 05067 05079 05098* 05649 05728 06300 06443
06444 06445 06446 06448 06679 06680 06752 06753
06776 06777 06945* 06973 07092 07568 07594 07612
07664 07667 07669 07670 07671 07672 07673 07674
07675 07676 07677 07678 07679 07680 07681 07682
07683 07684 07686 07687 07688 07689 07690 07691
07738 07740 07982 08039 08252* 08992 09002 09003
09009 09018 09021 09023
MICROORGANISMS,STOMACH
00897* 03607 08220
MICROSCOPY,ELECTRON
02625* 03168* 05125 06115 06249 06430 06462 07132
07528* 07725* 07728* 08628* 08663 08756*
MILK INTOLERANCE
00748 00919 01436 01440 01444 01745 02107* 02238*
02243 02244 02250 02559 03057 04199* 04232 04749*
05558
MINERAL ABSORPTION
SEE TRACE ELEMENT AND MINERAL ABSORPTION

MINERAL ABSORPTION,TRACE ELEMENT AND
00037 00040 00044 00465 00542 00887* 01047* 01842*
01843* 01849* 01878* 02255* 02405 02649 02651 02689
02788 02830 02942 02943 03040* 03137 03183 03208
03480* 03493 03498* 03598 03959* 03965 04100 04106
04117 04218 04319* 04333 04868* 05580 05730 06467*
06492 06740 07783* 08023 08637*
MINERAL DEFICIENCIES,TRACE ELEMENT AND
03415
MINERAL EXCRETION,TRACE ELEMENT AND
00707* 04333
MINERAL METABOLISM,LIVER TRACE ELEMENT AND
05279* 06405*
MINERAL METABOLISM,TRACE ELEMENT AND
00688* 01047* 01267 01338 06099* 06924 07783* 08776
08414 01931

MITOSIS
02490 03402 04293 04427* 05343
MOLYBDENUM METABOLISM
04877*
MORQUIOS DISEASE
01574
MOTILITY
SEE SMOOTH MUSCLE
MOTILITY MEASUREMENT TECHNIQUES
00047* 01072* 01077 01198* 01201* 01238 01871 02021*
02760* 02761* 02816 03695 04565 05430 07813* 08439*
MOTILITY PRESSURE STUDIES
SEE ALSO ANUS MOTILITY
SEE ALSO BILIARY TRACT MOTILITY
SEE ALSO ESOPHAGUS MOTILITY
SEE ALSO GALLBLADDER MOTILITY
SEE ALSO GASTROINTESTINAL MOTILITY
SEE ALSO LARGE INTESTINE MOTILITY
SEE ALSO SMALL INTESTINE MOTILITY
SEE ALSO STOMACH MOTILITY
00049* 00054* 00310* 00314* 01069* 01070* 01201* 01214*
01239 01862* 02065* 02656* 02760* 02761* 02816 02912*
03695 03704 03739* 04565 06799* 07813* 08439*
MOTILITY,ANUS
00059 04340
MOTILITY,BILIARY TRACT
01071* 01239 01577 01862* 02513 02514 02652* 02816
03284* 03292 03704 05200 05883* 06626 07911

MOTILITY,DRUG EFFECTS ON
00050* 00052* 00054* 00055* 00056* 00060 00276 00280
00512 00760 01072* 01210* 01211* 01269 01482 01577
01820* 01862* 01868* 01869* 02205 02506* 02652* 02653*
02659 02762* 02865* 04246 04324* 04464 04648 05074
05203 06332 07557
MOTILITY,DUODENUM
01210* 02655* 02658 03292 03618* 04345 07815* 08284
MOTILITY,ESOPHAGUS
00055* 00233* 00310* 00313* 00314* 00334 01067* 01069*
01074* 01261 01299 02065* 02070 02638 02759* 02761*
02875 02882 03727 03739* 03743 03745 03766 03772
03775 04211 04336* 05482 05507 06245 06511 06789*
06799* 06812 08087 08090 08124
MOTILITY,GALLBLADDER
00051* 00053* 00415 01065 01071* 01682 01700 01705
02028* 02506* 02652* 02816 03497* 04464 05203 06238*
06506* 07810* 07819
MOTILITY,GASTROINTESTINAL
00084* 00192 00280 00961 00977 01027 01057 01075*
01076 01077 01083* 01187 01198* 01314* 01337 01839*
01867* 01871 02547* 02660 02755 02760* 03363 03365
03379 03496* 03695 03797* 04246 04337* 04626* 05051
05191* 05197* 05198* 05205 05206 05370 05384 05430
06322 06325 06326 06498 06510 06514 06520 06763
07557 07709 07826 07827
MOTILITY,HORMONAL CONTROL OF
00017 00048* 00050* 00051* 01071* 01190 01316* 03844
05189*
MOTILITY,LARGE INTESTINE
00046* 00050* 00052* 01070* 01073* 01190 01211* 01447*
01482 01858* 01860* 01872 02064* 02264 02275 02540*
02541* 02582 02607 02656* 02657 03381 03429 04005
04006 04029 04031 04342 04346 04529 04565 04762*
05092* 05187* 05194* 06300 06502* 06507* 06510 07129
07149 07811* 07813* 07816 08199 08321 08439* 08441*
MOTILITY,NERVOUS CONTROL OF
00058 03385 07827
MOTILITY,RECTUM
01214*

MOTILITY,SMALL INTESTINE
00045* 00047* 00050* 00056* 00058 00060 00061* 00179*
00181* 00194 00276 00361* 00439* 00466 00518 01068*
01190 01210* 01354* 01381 01858* 01859* 01860* 01863*
01864* 01865* 01866* 01867* 02020* 02143* 02166 02540*

MOTILITY,SMALL INTESTINE
CONTINUED
02541* 02649 02653* 02654* 02657 02658 02762* 02789
02973 03020 03381 03429 03496* 03498* 03638 03844
03999 04342 04343 04346 04507* 04513 04558* 04565
05051 05074 05153 05187* 05189* 05192* 05193* 05207
05638 05883* 06130* 06245 06300 06388 06493 06514
06520 06941* 06975 07602 07625 07808 07813* 07814*
07816 07817 07821 08199 08251* 08321 06503*
MOTILITY,SMOOTH MUSCLE
06507*
MOTILITY,STOMACH
00048* 00050* 00051* 00054* 00066 00361* 00387 00391
00398 00416 00506 00512 00960 01059 01072* 01083*
01190 01201* 01210* 01238 01255 01316* 01334 01421
01820* 01837 01857* 01861* 01868* 01869* 01870 01873
01902 02021* 02044 02104* 02111 02112 02113 02119
02120 02140 02141 02210 02576 02659 02668 02687
02761* 02767* 02875 02879 02924 03003* 03014* 03020
03292 03432 03496* 03499 03500 03504* 03807 03856
04341 04344 04513 04631* 04648 05051 05182 05186*
05188* 05189* 05192* 05198* 05202 05225* 05252 05257
05554 05572 05594 06245 06503* 06508* 06509* 06514
06516 06517 06520 06859* 06897 07596 07801 07812*
07814* 07815* 07818 07820 07822 07823 07825 08154
08162 08199 08213 08318 08376

MUCOPOLYSACCHARIDES
00164 03401 03515* 03516* 03517* 03595* 04249 05830
07851*
MUCOPROTEINS
00213* 00279
MUCOSA,ANUS
02276 02280
MUCOSA,BILIARY TRACT
07393* 08842
MUCOSA,DUODENUM
00269 00359* 00438* 00440* 00448 00902* 01008* 01024*
01178* 01814* 02147* 02159 02178 02605 02789 03046
03598 03627 03723 03891 03912 03956 04486* 04724
05134 05138 06189 07842* 08773
MUCOSA,ESOPHAGUS
00296 00319* 00329 00340 01270 01275* 01298 02007*
02093 02638 02759* 02878 02889 03734* 03750 03789
04501* 04608 05434 07997*
MUCOSA,GALLBLADDER
00850* 01006* 01710 03312 03477 04276* 04995 06173
06180 06212 06518 07496 07515 08842
MUCOSA,GASTROINTESTINAL
00038 00063* 00157 00271 00452 00489 00894* 00980
01018* 01021* 01034 01052 01057 01723* 01726* 01730*
01786 01810 01815* 01994 02006* 02180 02544* 02585
02632 02661 02742* 02753 03054 03110 03369 03432
03433. 03891 03942 04252 04287 04288 04517 04525
04747 05051 05097* 06077* 06383 06399* 06412* 06497
06666* 07601 07736* 07766 07774 08059 09022 08891*

MUCOSA,LARGE INTESTINE
00015* 00224* 00568 00588 00596 00598 00610 00635
01017* 01061 01073* 01079 01181* 01449* 01472 01492*
01498 01728* 01738 02165 02254* 02255* 02259 02279
02286 02301 02646 02993 03067* 03094 03119* 03121
03127 03392 03429 03432 03454* 03905 03967 03968
03972* 04008 04008 04021 04033 04039 04045 04047
04290 04524 04528 04529 04563 04814 05089* 05097*
05142 05143 05393* 05458 05715 05733 05761 05764
05767 05813 05816 05819 05830 05843 06227* 06237*
06423 06676 06762 06778 07058 07122 07151 07157
07160 07166 07189 07665 07723* 07760 07772 07774
07787 07792 07970 08471 08497 08508 08518
MUCOSA,ORAL
04865* 05663*
MUCOSA,RECTUM
00568 00820* 01449* 01452* 01470 02254* 02266 02272
03067* 03099 03116* 03699 03976* 04008 04786 05393*
05731 06436 07122 07184* 08034 08460 08503
MUCOSA,SMALL INTESTINE
00002* 00012* 00014* 00017 00027* 00036 00043 00064*
00185* 00194 00284 00286 00375 00431* 00441* 00442
00447 00449 00451 00458 00464 00526* 00527* 00531
00532 00533 00539 00541 00546 00554 00557 00558
00938 01005* 01007* 01012* 01020* 01022* 01023* 01024*
01028 01039* 01043* 01058 01060 01062 01063 01079
01177* 01179* 01180* 01182* 01183* 01328 01350* 01353*
01362 01370 01375 01428* 01429* 01438 01440 01442
01468 01738 01822* 01827 01829 01830 01831 01843*
01845* 01846* 01847* 01848* 01850* 01854 01856 01913*
01986* 01987* 01988* 01989* 02035* 02143* 02144* 02147*
02148* 02149* 02150* 02151* 02165 02180 02237* 02240*
02244 02554* 02625* 02651 02736* 02740* 02743* 02774
02775 02988 02990 02993 03050 03053 03054 03058
03392 03423 03425 03429 03432 03443* 03454* 03479*
03480* 03482* 03485* 03498* 03597* 03598 03601* 03627
03629 03680 03696 03878 03891 03900 03902 03908

MUCOSA,SMALL INTESTINE
CONTINUED
03955 03960* 03967 03968 04191* 04212 04266* 04284
04296 04307 04313* 04331 04335 04483* 04485* 04490*
04493 04528 04581 04675* 04724 05051 05052 05090*
05097* 05098* 05142 05160* 05178 05189* 05208* 05360*
05362* 05367* 05369 05420 05446 05600* 05603* 05612
05652 05655 05719* 05720* 05721* 05733 06077* 06226*
06237* 06397* 06399* 06402* 06403* 06413* 06423 06452
06453 06489 06666* 06668* 06669* 06671 06672 06676
06679 06778 06890 06944* 06966 06972 06985 07058
07061* 07068* 07069 07078 07084 07625 07631 07665
07719* 07726* 07728* 07729* 07735* 07744 07760 07763
07772 07774 07780* 07787 07792 07885* 07960* 07961*
07962* 07964* 07965* 07970 08164 08303 08308 08406
08412* 08421 08425 08547*
MUCOSA,STOMACH
00005* 00006* 00007* 00008* 00011* 00018 00022 00066
00069* 00070* 00075* 00076* 00087 00089 00090 00092
00196* 00227* 00236* 00241 00255 00271 00355* 00358*
00359* 00366* 00371* 00375 00378 00379 00380 00403
00404 00405 00411 00413 00472* 00884* 00902* 00938
01007* 01010* 01045* 01046* 01084* 01085* 01086* 01089*
01095* 01100 01106 01201* 01270 01304* 01305* 01306*
01307* 01309* 01315* 01316* 01325 01327 01333 01342
01389* 01390* 01405 01416 01686 01760 01819* 01821*
01837 01838 01868* 01875* 01877* 01878* 01880* 01881*
01884* 01886* 01887* 01888* 01891* 01893* 01894* 01895*
01896* 01897* 01898* 01899 01901 02021* 02097* 02099*
02106* 02114 02121 02123 02187* 02203 02204 02210
02324* 02605 02620* 02628* 02629* 02633 02643* 02670*
02671* 02673* 02675* 02683* 02685 02687 02688 02741*
02878 02898* 02899* 02912* 02933 02935 02944 02951
02952 02953 02964* 03000* 03001* 03014* 03015* 03019
03432 03461* 03462* 03463* 03464* 03466* 03503* 03504*
03510* 03513* 03516* 03519 03521 03524 03673 03680
03709 03721 03734* 03793* 03805 03806 03808 03813
03816 03838 03839 03857 04274* 04279* 04305 04324*
04348* 04351 04364* 04365* 04368 04370 04373 04382
04501* 04504* 04544* 04581 04646 05051 05055 05097*
05116* 05135 05142 05153 05160* 05190* 05201 05227*
05228* 05230* 05231* 05257 05386 05406* 05416 05440
05465 05524 05533 05551 05568 05576 05579 05583
05587 05591 05594 05661* 05663* 05692 05878 05879
06076* 06227* 06237* 06399* 06402* 06403* 06408* 06439
06441 06449 06529* 06531* 06534* 06535* 06540 06541
06547 06548 06549 06709* 06719* 06723 06751 06784
06824 06874 06883 06890 06896 06906 06910 06925
06930 07035 07040 07625 07724* 07752 07801 07825
07834* 07836* 07839* 07841* 07846* 07859 07966* 07986
07996* 07997* 08135* 08152 08158 08182 08186 08196
08200 08227 08228 08240 08242 08264 08318 08325*
08940
MUCOSAL INJURIES,SMALL INTESTINE
02235*
MUCOSAL INJURIES,STOMACH
01105 01348 01397* 02211 04382 08184
MUCOSE,STOMACH
05111*

MUCOVISCIDOSIS
00220* 00437* 00640* 00642* 00649 00658 01233 01753
02545* 02796 02979 03130* 03132* 03140 03141 03200
03901 04056 04057 04061 04682 04830* 04831* 04832
04838 04841 05849 05855 05872 05875 07087 07199
07665 08363 08564* 08572 08592 08911 05857 08578
MUCUS
00850* 01095* 01105 01757 05416
MUCUS SECRETION,STOMACH
00070* 00366* 01086* 02031* 03501* 03515* 03516* 03517*
03524 04382 05416 06320 06548 07851*
MUD THERAPY
00418
MUSCLE MORPHOLOGY,SMOOTH
00406 01834 02263 05139 05206 05559
MUSCLE MOTILITY,SMOOTH
06507*
MUSCLE PHARMACOLOGY,SMOOTH
00050* 00052* 00056* 00057 00060 01068* 01075* 01482
02659 02902* 03856 03868* 05195* 05196* 05336
MUSCLE PHYSIOLOGY,SMOOTH
00045* 00047* 00055* 00058 00192 01075* 01820* 01834
01857* 01864* 01866* 01872 02065* 02075 02263 02275
02653* 02656* 02658 02659 03498* 03856 04343 05092*
05188* 05190* 05195* 05196* 05207 06479* 06502* 06667*
07815*
MUSCLE,SMOOTH
01837 02638 02661 04336* 06322 07825

MUSCULOSKELETAL SYSTEM
02612

MYCOSIS
00741 06390
MYELOMA
04022
MYESTHENIA GRAVIS
03925*
MYOBLASTOMA
02258
MYOMA
02131 03661 06186
MYOTONIA DYSTROPHICA
00310*

NAUSEA
00981 06186
NECROSIS
00409 00626 00647 00674 00689* 00757 00773* 00784
00788 00791 00925 00968 01528 01563 01613 01624
01674 01710 02164 02331 02338 02360 02428 02429
02432 02478 02494 02775 02966 03144* 03199 03212
03228 03230 03253 03278 03470 03706 03849 04097
04153* 04233 05100* 05546 05577 05764 06057 06062
06063 06289 06353 07139 07151 07213* 07217 07372
08245* 08262 08566 08613 08891*
NECROSIS,LARGE INTESTINE
08518
NECROSIS,LIVER
04093* 05973 06687*
NECROSIS,STOMACH
08187 08192

NECROTICANS,ENTEROCOLITIS
00571 00573 01423* 01454* 01727* 02543* 05747 05839
07162 08433* 08890*
NEONATAL JAUNDICE
00116* 00178* 00200* 00301 00748 00758 00972 01537*
01545* 01548* 01553* 01564 01597 01598 01940 02043
02359 02361 02452* 03055 03158* 03184 04093* 04887
04900 04924* 04933 05007 05014 05219 05904* 05941
05942 05944 05945 06159 06359 06589* 07236* 07264
08619* 08630* 08682 08828*
NEOPLASM,BILIARY TRACT
07288
NEOPLASM,MALIGNANT STOMACH
02610
NEOPLASMS,ABDOMEN
00885* 01268 02241 03372 03401 04586 06318 06338
06779 07586 08010*

NEOPLASMS,ANUS
01488 07145
NEOPLASMS,APPENDIX
02284 05770

NEOPLASMS,BENIGN ABDOMEN
03070* 09008

NEOPLASMS,BENIGN BILIARY TRACT
00857 03310 06168 06184 07504 08889 06195
NEOPLASMS,BENIGN DUODENUM
02987 05643 06958 06967 08296
NEOPLASMS,BENIGN ESOPHAGUS
00318* 02822 03655 03732* 03736* 03742 03747 05434
05485 06797* 06846 08106
NEOPLASMS,BENIGN GALLBLADDER
00858 00868 01463 02525 06191 06212 07476 08882
NEOPLASMS,BENIGN GASTROINTESTINAL
00942 01463 02551* 02786 03369 07532* 07649 08591
NEOPLASMS,BENIGN LARGE INTESTINE
00578 00579 00588 00591 00592 01463 01465 02250*
03094 03107 03987 03988 04015 04016 04694 04771
04780 04791 05393* 05776 05813 07137 07141 08535
NEOPLASMS,BENIGN LIVER
00727 02366 03664 04083* 04108 04881 04894 06014
06038 06992 08699
NEOPLASMS,BENIGN MESENTERY
03418 08523
NEOPLASMS,BENIGN PANCREAS
01515 02614 05871 08580 08587 08588
NEOPLASMS,BENIGN RECTUM
00613 01463 01465 04022 04791 05393* 07143
NEOPLASMS,BENIGN SALIVARY GLAND
08930
NEOPLASMS,BENIGN SMALL INTESTINE
00376 00444 00452 00459 01199* 01484 02158 02160
02162 02176 02957* 02965 02976 03885 03908 04679
04694 05626 05652 05655 06958 06964 06976 06983
06986
NEOPLASMS,BENIGN STOMACH
00303 00355* 00372 00376 00380 00403 01346 02110
02128 02129 02132 02135 02930 03018 03641 03661
03681 03811 03833 03838 03846 03848 03853 05401*

NEOPLASMS,BENIGN STOMACH
CONTINUED
05527 05531 05528 05541 05551 05553 05559 06861*
06862* 06871 06901 07020 08159 08168 08176 08183
08186 08207 08215
NEOPLASMS,BILIARY TRACT
01232 01560 01697 01934 02524 02904* 06009 06142
06161 06186 06193 06210 08845
NEOPLASMS,DUODENUM
00467 01384
NEOPLASMS,ESOPHAGUS
01300 02086 02551* 02869* 03792 04616 05435 08082
NEOPLASMS,GALLBLADDER
00859 04177* 04208* 06193 07498
NEOPLASMS,GASTROINTESTINAL
00979 01478 01735* 01736* 02947 03095 03401 05078
05449 07587 07589 07603 07607 07640 07692
NEOPLASMS,LARGE INTESTINE
02551* 03093 03104 03905 03973* 04033 04034 05393*
05761 05803 05819 06990 07112 07126 07138 07179
07714 08314 08441* 08453 08470 08476 08486 08501
08993
NEOPLASMS,LIVER
00294 00680* 01137* 01224 01560 01568 01599 02402
02583 02634 02704* 02724 02729 02848 02851 03164*
03185 03452* 03533* 03566 03585 03592 03637 04090*
04117 04153* 04265* 04311* 04411* 04421* 04917 05266
05290* 05332 05349 06007 06620 06621 06622 06624
07245* 07259 07260 07275 07295 07342 07361 07388
08633* 08650 08685 08687
NEOPLASMS,MALIGNANT ABDOMEN
06273 07642 09008 09015

NEOPLASMS,MALIGNANT ANUS
00615 03077* 04004 05769 07124

NEOPLASMS,MALIGNANT BILIARY TRACT
00213* 01678* 01699 02365 03291 03303 03310 04185
05003 05004 05010 06126* 06131* 06175 08576 02498*
NEOPLASMS,MALIGNANT DUODENUM
05641 06967 08295 08305 08320
NEOPLASMS,MALIGNANT ESOPHAGUS
00349 00423 01279* 01292 02062* 02092 02804 02871*
02883 02890 02891 02896 02954 03472 03733* 03741
03742 03778 04054 04542* 04602* 04611 04614 04615
04619 04620 05048 05275* 05470* 05471* 05473* 05497
05501 05511 05563 06791* 06792* 06797* 06798* 06801
06804 06806 06813 06814 06829 06830 06847 06848
06849 06854 07973* 08068* 08070* 08071* 08072* 08075*
08088 08103 08104 08106 08120 08121 08122 08242
NEOPLASMS,MALIGNANT GALLBLADDER
00847* 04108 04186 04188 04698 05608 06149 06166
07501 08835*
NEOPLASMS,MALIGNANT GASTROINTESTINAL
00942 00967 00996 01725* 01800 02010* 02786 03371
03393 03891 04198* 04225 05022* 05023* 05046 05061
05563 05636 06236* 06247 06254 06288 06290 07108*
07532* 07534* 07644 08446* 08591 08945 08958
NEOPLASMS,MALIGNANT LARGE INTESTINE
00252 00575 00579 00584 00593 00596 00599 00601
00611 00612 00623 01448* 01449* 01451* 01497* 01758
02250* 02274 02284 03061* 03080* 03087 03114 03393
03413 03970* 03971* 04015 04036 04195* 04208* 04212
04218 04547* 04759* 04760* 04791 04797 04799 04800
04812 05023* 05393* 05744* 05749 05751 05760 05789
05790 05795 05796 05799 05810 05838 05839 05843
05905* 06344 06984 07101* 07102* 07119 07124 07136
07137 07141 07150 07155 07166 07171 07185 07192
08430* 08434* 08446* 08450 08458 08468 08480 08489
08529 08544 08545 08559 08902
NEOPLASMS,MALIGNANT LIVER
00213* 00734 00754 00756 00786 01580 01583 01605
01943 02010* 02366 02626* 02723 02725 02809 02852
02921 03171* 03197 03198 03203 03214 03402 03452*
03540* 03586 04090* 04099 04105 04108 04116 04155*
04210 04304 04413* 04869* 04871* 04872* 04878* 04909
04921 05101* 05385 05392* 05402* 05463 05610 05760
05851 05907* 05920* 05921* 05923* 05975 05987 05996
06008 06044 06075* 06409* 06570* 06603 07108* 07231*
07238* 07242* 07249* 07268 07281 07284 07292 07308
07313 07325 07344 07348 07355 07356 07358 07359
07362 07363 07378 07990* 08639* 08640* 08649 08677
08699 08710 08727 08819
NEOPLASMS,MALIGNANT MESENTERY
02241
NEOPLASMS,MALIGNANT PANCREAS
00655 01509 01774 02005* 02758* 02921 03138 03718
04051* 04054 04058 04185 04208* 04298 04553* 04844
04848 04850 06167 06295 07202 07209 07292 08565*
08567 08588 08671 08983
NEOPLASMS,MALIGNANT RECTUM
01497* 02266 02272 03061* 04036 04777 04791 04801
04802 04803 05088 05393* 05531 05749 05762 05769
05799 06881 07101* 07127 07143 07169 07174 07180

NEOPLASMS,MALIGNANT RECTUM
CONTINUED
08194 08436* 08484 08488 08526
NEOPLASMS,MALIGNANT SALIVARY GLAND
00290 02571 04297 05032* 06230* 06801 08930 08995
NEOPLASMS,MALIGNANT SMALL INTESTINE
00450 00462 00467 00526* 00979 01000 01199* 01360
01364 01380 01384 01758 02160 02162 02176 02229
02245 02774 02957* 02968 02972 02982 03038 03121
03413 03864* 03885 03886 03894 03908 03913 04289
04691 04703 05023* 05596* 05602* 05621 05626 05630
05639 05652 05658 05681 06344 06957 06984 06986
07534* 08259 08269 08270 08285 08300 08305 08323
05610

NEOPLASMS,MALIGNANT STOMACH
00241 00303 00364* 00367* 00370* 00381 00382 00384
00388 00414 00424 00427 01312* 01321* 01323 01324
01332 01402 02005* 02013* 02126 02129 02131 02133
02134 02135 02847 02896 02922 02933 02934 02935
02936 02937 02938 02939 02940 02941 02942 02943
02944 02945 02948 02950 02954 02955 03614* 03715
03718 03741 03798* 03800* 03802* 03803 03804 03805
03806 03812 03817 03821 03822 03838 03840 03845
03860 03862 03932 04274* 04305 04544* 04584 04627*
04635 04652 04654 04657 04659 04660 04661 04662
04663 04664 04665 04668 04669 04670 05023* 05088
05129 05275* 05401* 05501 05514* 05518* 05522* 05523*
05534 05536 05537 05539 05540 05542 05547 05550
05559 05560 05563 05564 05585 05674 06344 06737
06792* 06860* 06861* 06870 06871 06873 06875 06876
06877 06881 06886 06889 06893 06896 06899 06907
06919 06921 06923 06926 06927 06929 06932 06936
07045 07516 07534* 08070* 08137* 08150 08163 08166
08170 08171 08173 08177 08183 08198 08207 08219
08222 08227 08230 08232 08234 08237 08238 08240
08241 08242 08323 08902 08974
NEOPLASMS,MESENTERY
08486 09011
NEOPLASMS,PANCREAS
00679* 00911 00942 00949 00953 01742 01752 01766
01775 03609* 03722 03942 04051* 04060 04063 04229
04587 04840 04849 05063 05264 05266 05853 05856
05858 05860 05863 05864 05870 05888 06244 07205
07212 07526* 07639 08571 08573 08577 08584 08593
NEOPLASMS,RECTUM
00609 00622 01488 02258 02551* 03104 04038 05088
05417 05619 05780 07126 07128 08499
NEOPLASMS,SALIVARY GLAND
00921 03414 03708 05032* 06230* 06312 07546 07634
07645 08963
NEOPLASMS,SMALL INTESTINE
00269 00456 01258 01369 01382 01429* 02176 02551*
03638 03898 03905 04681 04688 05651 05653 06955
06990 07094 07714 08249* 08263 08297 08311 08314
08573 08993
NEOPLASMS,STOMACH
00383 00405 00406 01216* 01336 02114 02123 02125
02129 02551* 02847 02947 03795* 03798* 03816 04211
04658 04666 05078 05524 05533 05557 05575 05586
06751 06882 06888 06892 06928 06938 07206 08196
08224 08229 08236 08371
NEOPLASMS,VILLOUS GASTROINTESTINAL
05618
NEOPLASMS,VILLOUS LARGE INTESTINE
00611 03970* 07172
NEOPLASMS,VILLOUS RECTUM
00591

NERVOUS CONTROL OF ANUS
01818* 02263 02612 03106 08483
NERVOUS CONTROL OF BILIARY TRACT
00844* 01126* 01862* 02197* 06626
NERVOUS CONTROL OF ESOPHAGUS
00334 00351 01067* 01069* 01273* 01283 02638 02880
02882 03457* 03769 03773
NERVOUS CONTROL OF GALLBLADDER
00363* 01682 02513 05108* 06518 07471*
NERVOUS CONTROL OF GASTROINTESTINAL TRACT
00052* 00482* 00922 00941 00960 01018* 01083* 01421
02197* 02231 02568 02660 02661 03021 05073 07605
06372
NERVOUS CONTROL OF LARGE INTESTINE
00015* 00046* 00052* 00890* 01073* 01858* 02540* 02657
03060* 03069* 04006 04011 04819 05140 05399* 05746*
06381 07824
NERVOUS CONTROL OF LIVER
00739 01013* 03557 03600* 05284* 05986 07809*
NERVOUS CONTROL OF MOTILITY
00058 03385 07827
NERVOUS CONTROL OF PANCREAS
00020 00097* 00101* 00103* 00469* 00651 01520 01524
01530 02332 04396 06555* 07223

NERVOUS CONTROL OF SALIVARY GLANDS
01078* 01874
NERVOUS CONTROL OF SECRETION
03385
NERVOUS CONTROL OF SMALL INTESTINE
00015* 00045* 00058 00439* 00890* 01024* 01776 01858*
01859* 01863* 02143* 02153 02540* 02657 04343 04513
05139 06381 06442 07824
NERVOUS CONTROL OF STOMACH
00006* 00362* 00387 00394 00416 00474* 00489 01072*
01316* 01344 01417 01818* 01820* 01857* 01861* 01870
01873 02111 02112 02113 02119 02120 02206 02633
02879 02924 02930 02949 03020 03026 03510* 04648
05189* 05257 05594 07035 07041 08376
NERVOUS CONTROL OF STOMACH SECRETION
00074* 00077* 00080* 00082* 00083* 00492 00496 00500
01083* 01097* 01100 01103 01104 01294 01406 01410
01861* 01879* 01881* 01902 02669* 02817 02926 03003*
03019 03616* 04357* 04364* 04513 05232* 05245 05252
05582 05690 06076* 06533* 06913

NERVOUS SYSTEM,AUTONOMIC
00046* 00474* 00492 00941 00977 01013* 01024* 01067*
01126* 01283 01314* 01530 01857* 02865* 02973 03060*
03109 03933 04006 04789 06314 06317 06498 06518
07631 07824
NERVOUS SYSTEM,CENTRAL
SEE ALSO NEUROENDOCRINE CONTROL
00083* 00216* 00474* 00496 00691* 00714 00840 00922
00981 00982 01150* 01379 01406 01495* 01496* 01519
01547* 01564 01670 01768 01809 01857* 01861* 01881*
01902 02342* 02559 02790 02927 03003* 03010* 04101
04104 04819 05073 05252 05552 05689 05694 05916*
05921* 05923* 06233* 06307 06329 06355 06714* 07093
07297 07337 07426* 07595 07622 07643 07980 08165
08680 08989
NEURINOMA
00380 02110 08263 08311
NEUROENDOCRINE CONTROL
00048*
NEUROHUMORAL AGENTS
00006* 00015* 00035* 00052* 00054* 00058 00103* 00137*
00162 00179* 00181* 00214* 00472* 01018* 01027 01076
01174 01202* 01682 01900 01990 02908* 06315
NEUROMATOSIS
00613
NEUROMUSCULAR DISEASES
00216* 01261 02790 03370 03638 05517* 05520* 05829
06714*

NOISES,GASTROINTESTINAL
06345
NONSPECIFIC LARGE INTESTINE ULCERS
05840
NONSPECIFIC SMALL INTESTINE ULCERS
00435* 00465 01258 01350* 01382 02171 05671 08352
NONSPECIFIC ULCERS
01450*
NONSPECIFIC ULCERS,SIMPLE
SEE NONSPECIFIC ULCERS
NOREPINEPHRINE
00015* 00035* 00052* 00103* 00137* 00179* 01174 01900
01990 06414
NORMAL MICROORGANISMS
02739*
NUCLEIC ACID METABOLISM
00063* 00095* 00098* 01007* 01992 01996 01998 03594*
04239 05720* 06540
NUCLEIC ACID METABOLISM,LIVER
00016* 00064* 00117* 00144 00147 00162 00169 00170
00702* 00764 00786 01118* 01123* 01137* 01151 01156
01157 01159 01162 01555 01655* 01926* 01932 01933
01943 01949 01950 01955 01962 01964 01966 01981
02381 02419* 02460* 02713 02714 03273 03565 03566
03584 04417* 04437 04450 04455 04474 04949 05307
05308 05339 06404* 06426 06432 06580* 06622 06624
06635 06647 06648 07933 08731*
NUCLEIC ACID SYNTHESIS,LIVER
07242* 07366*
NUCLEIC ACIDS,LIVER
01144*
NUTRITION
SEE ALSO ABSORPTION
SEE ALSO ANOREXIA NERVOSA
SEE ALSO KWASHIORKOR
SEE ALSO MALABSORPTION
SEE ALSO OBESITY
SEE ALSO VITAMINS
00124* 00177* 00180* 00195 00446 00465 00528* 00642*
00737 00745 00792* 00893* 00922 00971 01022* 01033
01049* 01051 01427* 01646* 01674 01743 01744 01771
01997 02906* 02961* 03203 03264* 03272 03280 04228

NUTRITION
CONTINUED
04868* 04893 06328 06385 07070 07925 08980
NUTRITIONAL FACTORS
07928

OBDURATOR HERNIA
01746
OBESITY
00177* 00180* 00315* 00916 01356* 02346* 02569 02570
02747 02975 03362 05604* 05637 06863* 07595 07782*
OBSTRUCTION,BILIARY TRACT
00656 00664* 00703* 00756 00817* 00849* 00852 00854
00864 00870 01205* 01208* 01209* 01213* 01227 01232
01243 01533* 01536* 01539* 01560 01570 01585 01595
01596 01599 01706 01713 01718 01938 02008* 02335
02359 02500* 02504* 02509 02532 02535 02536 02537
02538 02783 03144* 03189 03285* 03289* 03300 03449*
03534* 03596* 03706 03910 04107 04130 04167* 04182
04186 04422* 04425* 04545* 04569 04698 04878* 04892
04931 04981* 04992 04997 05008 05016 05316 05974
06012 06137* 06146 06174 06185 06196 06211 06222
06474* 07218 07432 07444 07449 07467* 07471* 07479
07502 07904 07944 07945 08563* 08635* 08657 08671
08706 08825* 08863 08878 08879 07507
OBSTRUCTION,DUODENUM
01363 02178 02528 03145* 05608 05625 05874 08272
08316
OBSTRUCTION,ESOPHAGUS
00320 00329 00332 00336 00341 00342 01333 02884
02894 02897 03772 03773 03775 03779 04596* 04610
05475 06791* 06797* 08068* 08079* 08105 08133
OBSTRUCTION,GALLBLADDER
02016* 03311 05965
OBSTRUCTION,GASTROINTESTINAL
00407 00925 00972 00975 00976 00982 01425 01467
01505* 01512 01710 01746 01753 01754 01756 01770
01789 01790 01811 02041 02178 02182 02561 02578
02916 02917 02984 03863* 04216 04525 04547* 05065
05814 06159 06324 06386 07606 08912 08961
OBSTRUCTION,LARGE INTESTINE
00561* 00569 00574 00581 00587 00590 00602 00603
00604 00607 00617 00626 00895* 00950 00998 01001
01002 01240 01366 01367 01368 01449* 01471 01480
01486 01751 02257 02262 02615 02959* 02975 02984
03070* 03073* 03076* 03092 03109 03141 03388 03413
03901 03907 03983 04027 04028 04050 04200* 04216
04499* 04547* 04682 04778 04785 05020 05026* 05080
05601* 05748 05772 05777 05778 05779 05811 05811
05827 05839 05843 05857 06022 06321 06340 06368
07104* 07109* 07117 07118 07130 07149 07154 07179
07665 08275 08287 08294 08321 08505 08507 08519
08551 08838 08895* 08898 08992
OBSTRUCTION,PANCREAS
00292 00654 00675 01229 01528 02837 06558 08563*
08596* 08608
OBSTRUCTION,PYLORIC
00091 00391 00399 00401 00405 00408 00412 00413
01072* 01310* 01322 01326 01341 01365 01424 01512
01870 02051 02189* 02575 02911* 02927 03301 03718
03757 03820 03825 03829 03835 03837 03910 04636
04640 05587 05608 06838 06931 06960 06963 08139*
08155 08156 08168 08186 08211 08226 08334*
OBSTRUCTION,RECTUM
05417
OBSTRUCTION,SMALL INTESTINE
00410 00429* 00435* 00437* 00439* 00443 00454 00457
00461 00524 00617 00856 00880 00895* 00950 00975
00998 01001 01240 01258 01309* 01322 01347 01350*
01355* 01358 01362 01363 01366 01367 01368 01378
01425 01468 01511 01532 01707 01751 01763 01769
02145* 02158 02163 02164 02166 02170 02172 02177
02182 02283 02516 02572 02575 02597 02602 02615
02774 02957* 02959* 02963* 02965 02967 02969 02974
02978 02979 02984 02989 02990 02994 02995 02996
03047 03140 03141 03388 03413 03434 03484 03638
03825 03863* 03868* 03877 03880 03881 03886 03887
03888 03895 03898 03901 03910 03912 03914 04061
04216 04499* 04500* 04509* 04676* 04677 04679 04682
04685 04687 04690 04692 04743* 05047 05080 05193*
05601* 05606 05615 05617 05623 05624 05629 05631
05642 05644 05646 05651 05652 05827 06022 06139*
06248 06321 06340 06364 06368 06386 06943* 06946*
06948 06953 06965 06968 06971 06974 06989 07059
07105* 07118 07153 07154 07506 07665 08245* 08246*
08248* 08250* 08256* 08257* 08266 08271 08273 08275
08278 08281 08283 08285 08287 08288 08292 08294
08309 08315 08319 08321 08480 08838 08895* 08898
08986 08992
OBSTRUCTION,STOMACH
00390 00412 00656 01287 02528 02918 03825 03830
06822 06895 07045 08139*

OBSTRUCTIVE JAUNDICE
00213* 00283 00301 00444 00467 00676 00698* 00703*
00721 00736 00756 00787 00798 00807 00852 00869
00871 00879 00881 00972 01203* 01218* 01227 01229
01232 01253 01559 01637 01675* 01709 01713 01940
02012* 02023* 02043 02236* 02367 02414 02641* 02783
02787 02819 02832 02852 03158* 03166* 03188 03189
03190 03215 03290* 03300 03534* 03620 03654 03666
03667 03707 03712 03907 04159 04311* 04322* 04425*
04750* 04837 04873* 04874* 04982* 05008 05121 05123
05214 05298* 05867 05912* 05946 05947 05985 06128*
06137* 06145 06146 06150 06159 06165 06181 06183
06184 06187 06196 06199 06200 06201 06202 06203
06782 07202 07227* 07256* 07334 07381 07401 07412
07451 07475 07509 07510 07511 08648 08656 08706
08828* 08829* 08832* 08846 08866 08878 08879 06359
OBSTRUCTIVE,BILIARY TRACT
06201
ODDI,SPHINCTER OF
SEE ALSO BILIARY TRACT
00654 00860 00861 00871 00872 01515 01681* 01690
01695 01700 01718 01938 02197* 02303* 02339 02499*
02506* 02507 02510 02843 02856 03145* 03151 03282*
03289* 03292 03297 03305 03497* 04190* 04589 04833
04888 04984* 05013 05203 05464 06158 06162 06167
06188 06505* 06519 07503 07513 07519 08563* 08569
08850 08856 08868

OMENTUM
01659 03352 05541 05572 05804 08909
OMENTUM,GREATER
06287 06458 08931
OMPHALOCELES
09007
ORAL MUCOSA
04865* 05663*
OXYGEN
00702* 00744 00895* 00896* 00960 01510 01555 01593
01594 01636 01638 02390 02485 02557 02593 04897
07593 07921 07922 08749

PAIN,ABDOMEN
00085* 00455 00456 00467 00479* 00485 00523 00588
00612 00622 00660 00676 00716 00874 00880 00939
00963 00986 00992 01232 01359 01382 01386 01512
01515 01736* 01756 01770 01778 01779 01811 01995
02163 02178 02257 02770 02776 02858 02915 02973
02983 03031 03050 03151 03217* 03298 03314* 03327*
03364 03367 03370 03431 03638 03853 03873 03893
03898 03984 04018 04019 04029 04130 04236 04623*
04771 04776 04958 05009 05419 05505 05648 05728
05787 05814 05828 05829 05849 06054* 06186 06343
06725 06762 07324 07540 07564 07613 07627 07657
07712 08148 08220 08249* 08538 08923 08960
PANCREAOZYMIN
01912*
PANCREAS
03526* 04051* 05262* 05362* 05693 06557 08843
PANCREAS ABSCESSES
00654 00665* 00667* 01527 07194* 08574

PANCREAS AMYLASE SECRETION
00062* 00094* 00099* 00100* 00102* 00106 00206* 00645*
01111* 01113* 01143* 01910* 01914 02005* 02059 02303*
02330 03131* 03135 03266* 03527* 03529* 03674 04075
04150* 04385* 04389* 04391 04393 04394 04842 04944*
05208* 05263* 05519* 05873 05877 05879 05886 06550*
06552* 06558 07219 07536* 07867* 08590 08597* 08604
PANCREAS ANGIOGRAPHY 05260*
00199* 00208* 00949 02039 02614 02795 03138 03153
06354 07209 08579
PANCREAS ANOMALIES
00208* 00646 00650 01505* 01511 01512 02155 02305
03140 04053* 04055 04062 04190* 04391 04830* 05874
05899 07154 08593
PANCREAS BICARBONATE SECRETION
00096* 00099* 00101* 00104* 00106 01087* 01109* 01411
01908* 01912* 01913* 01918 02310 02472* 03131* 04150*
04387* 05272 05519* 06530* 06550* 06551* 07195* 07829*
PANCREAS BIOCHEMISTRY
00009* 00094* 00098* 00100* 00102* 00103* 00292 01111*
01112* 01115 01116 01188 01229 01526 01581 01816*
01907* 01909* 01910* 01914 01916 01917 01919 01991
01992 01996 01998 02338 02776 02837 03130* 03134*
03137 03138 03236* 03531 03599* 03674 04074 04386*
04395 04397 04398 04399 04831* 04842 04944* 05000
05210 05259* 05266 05267 05271 05413 05864 05877
05878 05879 05880 05884* 05896 06561 06563 07866*
07867* 07868* 07876 08031 08583 08594* 08598*
PANCREAS BIOPSY
00654 02839 04236 04553*
PANCREAS CALCIUM SECRETION
04835
PANCREAS CALCULI
03152 03306 04835 05899 08564* 08585
PANCREAS CANCER
00219* 00511 00643* 00644* 00647 00652 00655 00656
00660 01209* 01229 01257 01503* 01505* 01509 01514
01676* 01677* 01725* 01774 01780 01800 02005* 02008*
02178 02248 02308 02314 02527 02758* 02785 03136
03138 03157* 03189 03637 03693 03718 04052* 04054
04058 04059 04060 04074 04185 04207* 04298 04850
05397* 05418 05876 07196* 07207 08561* 08568 08579
PANCREAS CARCINOGENESIS
00655
PANCREAS CHEMICAL COMPOSITION
05103* 05104* 05271
PANCREAS CHLORIDE SECRETION
00096* 00101* 01912*
PANCREAS CHYMOTRYPSIN SECRETION
01111* 02058 04386* 04391 04393 04394 04397 06553*
PANCREAS CIRCULATION
00105 00208* 01518 01522 01530 02318* 02621* 03810
04388* 04396 06456 06703 07976 08594* 08595*
PANCREAS CYSTS
00641* 00653 00654 00667* 00675 00904 00906 00907
00909 00910 01246 01506* 02155 02309 02313 02527
02776 02785 03139 03352 04064 04829* 04833 04845
04847 04858 05068 05847* 05861 05865 05871 05873
05888 05901 07211 07212 07219 08561* 08571 08579
08580 08585 08586 08593
PANCREAS DEVELOPMENT
01512 06564
PANCREAS DIAGNOSIS
00199* 00205* 00206* 00208* 00209* 00239* 00267 00274
00288 00292 00644* 00654 00665* 00667* 00872 00949
01220 01229 01233 01241 01257 01503* 01506* 01512
01752 01772 01917 01918 02039 02315 02691* 02692*
02758* 02785 02795 02796 02796 02837 02839 02843
02844 03131* 03136 03142 03151 03153 03621 03637
03663 03674 03675 03683 03693 03722 03865* 04055
04057 04236 04400 04522 04553* 04587 04592 04831*
04838 04844 05048 05413 05422 05431 05519* 05854
05859 05861 05863 05864 05865 05868 05873 05876
06074* 06255 06739 06750 06761 06764 06767 06788
07197* 07198* 07200 07202 07204 07207 07209 07210
07219 07603 07873 07991* 07999* 08002* 08051 08560*
08561* 08579 08592 08603 08954 05418

PANCREAS DISEASE ETIOLOGY
04839
PANCREAS DISEASE TREATMENT
00898* 04838 04839
PANCREAS DISEASES
00199* 00292 00641* 00642* 00649 00654 00658 00674
00675 00925 01506* 01508 01512 01532 01770 02338
02691* 02692* 02776 02844 02861 02979 03132* 03135
03137 03138 03141 03378 03663 03674 04056 04057
04400 04830* 04832 04833 04834 04841 05052 05418
05422 05431 05852 05859 05872 06178 06370 07207
07528* 07849* 08560* 08561* 08562* 08572 08577 08578
08603 08969 03865* 07991*
PANCREAS DISEASES,BIOCHEMICAL DIAGNOSIS OF
01229 01241 02057 02058 02059 02060 05273 05873
07991* 08590 05272

PANCREAS DUCTS
00654 00661* 00667* 01528 01718 01914 02507 03143*
04385* 04836 05883* 07761 08563* 05464 07216
PANCREAS ELECTROLYTE SECRETION
00099* 01907* 05273
PANCREAS ENZYME SECRETION
00645* 01581 01908* 02472* 05266 06074* 08363 08607
PANCREAS ENZYMES
00009* 00019 00062* 00094* 00097* 00100* 00101* 00102*
00108* 00185* 00206* 00209* 00274 00292 00562* 00639*
00644* 00657 00668* 01046* 01059 01111* 01114 01115
01116 01188 01220 01229 01438 01469 01516* 01775
01816* 01906* 01907* 01909* 01910* 01914 01916 01919
01986* 01990 01991 01992 01996 01998 02005* 02047
02057 02058 02059 02060 02246 02304* 02318* 02320*
02321* 02328 02329 02334 02337 02338 02691* 02692*
02776 02796 02837 02844 03129* 03130* 03133* 03134*
03138 03143* 03236* 03486* 03531 03599* 03615* 03672
04072 04074 04075 04277* 04386* 04388* 04391 04392
04393 04394 04395 04396 04397 04398 04399 04522
04830* 04831* 04832 04835 04838 04839 04842 04843
04851* 04857 05000 05102* 05259* 05260* 05261* 05263*
05263* 05413 05422 05431 05869 05877 05878 05879

PANCREAS ENZYMES
CONTINUED
05880 05884* 05885 05896 06030 06385 06550* 06554*
06563 06767 07213* 07866* 07867* 07874 07938 08031
08424 08859

PANCREAS ETIOLOGY
05902
PANCREAS EXTRACTS
00094* 00108* 06554*

PANCREAS FISTULAS
00645* 00654 01527 02309 02693 02782 03526* 03599*
07863* 05862 08566
PANCREAS HISTOLOGY
00009* 00020 00095* 00644* 00663* 01508 02187* 02302*
02303* 02317* 02321* 02325* 02636 02837 03200 04056
04076 04840 05102* 05103* 05104* 05864 06564 07208
07526* 07528* 07725* 07868*
PANCREAS HORMONES
00893* 01190 01411 03942 04522 06556 06596* 07208
07526* 07862*
PANCREAS IMMUNOLOGY
01504* 01507* 01525 02317* 02318* 05848* 06075* 07757
PANCREAS IN CHILDREN
00642* 01511 02305 03130* 04053* 04831* 04835 04841
04845 04847 05000 05861 05875 05899 07205 07528*
08572 08573
PANCREAS INJURIES
00645* 00648 00659 00673 01359 01513 02306 02309
02311 02555 03142 03144* 05868 06257 06316 08570
08581
PANCREAS LIPASE SECRETION
00062* 00094* 00100* 00102* 00274 01102 01241 01991
02057 02058 02059 02060 02305 02310 03527* 03529*
04328 04391 04392 04393 04394 04399 04842 04851*
04944* 05208* 05260* 05263* 05877 05879 05883* 06074*
06552* 06553*
PANCREAS METABOLISM
00009* 00095* 00098* 00103* 01111* 01112* 01115 01531
01915 04368* 04395 05221 05268 05869 07202 07224
07868* 07871 07875 08609
PANCREAS MORPHOLOGY
01011* 01115 01190 02302* 02693 02782 03200 04062
04298 04301 05103* 05104* 05267 05269 06456 06703
07207 07223 07725* 07761 08575
PANCREAS NEOPLASMS
00679* 00911 00942 00949 00953 01742 01752 01766
01775 03609* 03722 03942 04051* 04060 04063 04229
04587 04840 04849 05063 05264 05266 05853 05856
05858 05860 05863 05864 05870 05888 06244 07205
07212 07526* 07639 08571 08573 08577 08584 08593

PANCREAS NEOPLASMS,BENIGN
01515 02614 05871 08580 08587 08588
PANCREAS NEOPLASMS,MALIGNANT
00655 01509 01774 02005* 02758* 02921 03138 03718
04051* 04054 04058 04185 04208* 04298 04553* 04844
04848 04850 06167 06295 07202 07209 07292 08565*
08567 08588 08671 08983 05867
PANCREAS OBSTRUCTION
00292 00654 00675 01229 01528 02837 06558 08563*
08596* 08608
PANCREAS PATHOLOGY
00643* 00647 00653 00663* 00665* 01507* 01581 01724*
02039 02302* 02303* 02305 02325* 02338 02782 02839
03135 03274 03663 04052* 04078 04229 04277* 04830*
04831* 05102* 05413 05418 05422 05431 05860 05888
05897 06558 06562 07201 07206 07211 07215 07217
08566 08567 08574 08577 08585 08586 08594* 08613
08614
PANCREAS PERFORATION
00653
PANCREAS PERFUSION
00105 00663* 07876

PANCREAS PHOSPHOLIPASE SECRETION
05884*01516* 08598*
PANCREAS PROTEASE SECRETION
00094* 00100* 01438 01508 02320* 04386*
PANCREAS PROTEIN SECRETION
00102* 00104* 01087* 01113* 01143* 04387* 05271 06398*
06530*
PANCREAS PSEUDOCYSTS
05854 05856
PANCREAS RADIOLOGY
00199* 00205* 00208* 00644* 00654 00949 01257 02032*
02039 02302* 02315 02758* 02782 02785 02795 02844
03136 03143* 03153 03530* 03663 03693 04055 04077
04553* 04592 04858 05854 05861 05902 06074* 06724
06788 07194* 07197* 07198* 07204 07207 07999* 08002*
08007* 08561* 08579

PANCREAS REGENERATION
00095* 00098* 08575
PANCREAS RUPTURE
02311
PANCREAS SECRETION
00020 00097* 00101* 00105 00107 00288 00292 00639*
00662* 00666* 00672 01109* 01110* 01113* 01114 01115
01116 01143* 01220 01229 01469 01507* 01528 01907*
01908* 01909* 01911* 01913* 01915 01919 02193* 02312
02329 02472* 02544* 02693 02837 03019 03129* 03134*
03135 03137 03143* 03236* 03274 03526* 03527* 03529*
03599* 03677 03942 04074 04150* 04277* 04387* 04394
04396 04400 04522 04830* 04831* 04834 04839 04842
04843 04880* 04916 05000 05258* 05260* 05261* 05263*
05269 05270 05362* 05413 05431 05729 05852 05877
05878 05879 05880 05884* 05901 06035 06163 06385
06552* 06553* 06555* 06556 06557 06559 06560 06596*
06739 06764 07195* 07200 07208 07216 07609 07829*
07849* 07863* 07864* 07865* 07873 07876 07959* 08008*
08583 08598* 08793
PANCREAS SURGERY
00062* 00098* 00463 00639* 00641* 00643* 00645* 00648
00648 00651 00652 00654 00657 00659 00665* 00667*
00670 01220 01503* 01504* 01505* 01506* 01507* 01512
01513 01526 01532 01699 01752 01767 01914 01915
02039 02306 02307 02308 02309 02311 02312 02313
02315 02316 02339 02522 02614 02693 03128* 03129*
03137 03139 03142 03143* 03352 03599* 04051* 04052*
04053* 04055 04067* 04069* 04269* 04301 04389* 04829*
04833 04840 04845 04847 04848 04858 05358 05377*
05574 05658 05847* 05856 05863 05865 05866 05869
05899 05901 07194* 07196* 07203 07205 07210 07215
08560* 08562* 08568 08575 08576 08580 08582 08586
08588 08593 08614
PANCREAS TRANSPLANTATION
01504* 01507* 01510 02316 03129* 03135 04269* 05377*
05856
PANCREAS TRAUMA
00645* 00648 00659 01513 02306 02311 03142 04845
04846 05901 07203 07219 08582
PANCREAS TREATMENT
01503* 01506* 05864 05868 08560* 08562*
PANCREAS TRYPSIN INHIBITION
04386* 04397 06554* 07223 08607 01906*

PANCREAS TRYPSIN SECRETION
02303* 02310 02692* 03138 03527* 03529* 04391 04397
04842 04944* 05260* 05263* 05877 05879 05896
PANCREAS TUMORS
08579
PANCREAS ULTRASTRUCTURE
00019 01011* 01115 01816* 01916 02319* 02636 05102*
05103* 05104* 06398* 06431 06558 07526* 07528* 07725*
07754
PANCREAS,AGE EFFECTS ON
01011* 02302*
PANCREAS,ALCOHOL EFFECTS ON
01528
PANCREAS,CLINICAL STUDIES OF
05863
PANCREAS,DISEASES ASSOCIATED WITH
03137 05850 05864 08565*
PANCREAS,DRUG EFFECTS ON
00102* 00642* 01113* 01143* 01907* 01911* 01913* 02304*
05259* 05270 05900 06431 07725* 07866* 07868*
PANCREAS,DRUG TREATMENT OF
00642* 01522 01523 01524 02320* 02325* 02668 04051*
04072 04390* 05852 05872 05894 08595* 08616 08617
PANCREAS,HORMONAL CONTROL OF
00096* 00099* 00101* 00102* 00104* 00106 00107 00288
00642* 01087* 01102 01109* 01110* 01115 01411 01528
01908* 01911* 01912* 02662* 03677 04074 04394 04396
04522 05258* 05270 05271 05876 05880 06398* 06550*
06551* 06559 07223 07867* 07870 07872

PANCREAS,NERVOUS CONTROL OF
00020 00097* 00101* 00103* 00469* 00651 01520 01524
01530 02332 04396 06555* 07223
PANCREAS,TOXIC EFFECTS ON
00019 00655 01112* 01772 02319* 02544* 05900 06398*
07754
PANCREATECTOMY
04688 05848* 06552*
PANCREATIC DISEASES,BLOOD COAGULATION IN
05851
PANCREATITIS
00410 00425 00848* 00880 01209* 01287 01347 01473
01505* 01677* 02248 02334 02514 02526 02527 02530
03137 03146* 03637 03638 03889 04070* 04236 04390*
04573 04846 04916 05102* 05844 05898 06343 06376
07195* 07216 07219 07467* 07637 08590 08595* 08605
08822 08853

PANCREATITIS COMPLICATIONS
01527 02330 04855 08609 08612
PANCREATITIS DIAGNOSIS
00205* 00206* 00239* 00269 00288 00292 00562* 00669
00670 00671 00672 00676 01229 01257 01516* 01519
01527 02060 02329 02330 02335 02691* 02692* 02785
03147* 03150 03677 03722 04071 04073 04077 04078
04587 04852* 04856 04857 04858 05418 05464 05901
05902 07198* 07214 08007* 08031 08561* 08596* 08597*
08601* 08602 08604
PANCREATITIS DIAGNOSIS,CHRONIC
07527*
PANCREATITIS EPIDEMIOLOGY
02330 04070* 05902 08610
PANCREATITIS ETIOLOGY
00019 00661* 00669 00670 00673 00676 00861 00925
01516* 01517* 01521 01525 01528 01530 01706 01724*
02303* 02306 02309 02310 02317* 02318* 02319* 02321*
03144* 03145* 04065* 04070* 04071 04073 04388* 04856
04857 05418 05856 05883* 05895 05896 05900 05901
07224 08589 08597* 08610 08615 08856
PANCREATITIS ETIOLOGY,ACUTE
05258*
PANCREATITIS IN CHILDREN
04073 04837 05895 05901 07225
PANCREATITIS PATHOLOGY
00675 00676 01516* 01527 01528 01529 02330 04065*
04066* 04073 04076 04388* 04856 05895 07224 08601*
08610
PANCREATITIS PATHOPHYSIOLOGY,ACUTE
08599*
PANCREATITIS PROPHYLAXIS
08611

PANCREATITIS SURGERY
00667* 00676 01520 02331 02332 02333 02335 02336
03150 04070* 04071 04085* 04856 05866 05887 05888
05893 06165 07225 08563* 08589 08596* 08599* 08601*
08610 06289
PANCREATITIS TREATMENT
00651 00664* 00666* 00668* 00669 00670 00671 00674
00676 01520 01522 01523 01524 01527 01771 02320*
02322* 02325* 02326* 02331 02332 02333 02334 02335
02337 02339 03143* 03148* 04067* 04069* 04070* 04072
04073 04264 04390* 04852* 04859 05418 05856 05866
05882* 05888 05889 05890 05891 05892 05893 05894
05896 05897 05901 07089 07214 07225 08569 08589
08594* 08595* 08603 08607 08609 08610 08611 08613
08614 08616 08617
PANCREATITIS,ACUTE
00274 00342 00662* 00663* 00664* 00665* 00666* 00668*
00669 00670 00671 00672 00673 00676 00902* 01516*
01518 01521 01522 01523 01524 01525 01527 01529
01531 01532 02047 02060 02320* 02321* 02322* 02323*
02324* 02326* 02327 02328 02331 02334 02336 02339
02511 02691* 02692* 03129* 03138 03144* 03147* 03148*
03149* 03153 04069* 04072 04073 04074 04076 04078
04264 04368* 04388* 04390* 04845 04853* 05260* 05418
05856 05882* 05883* 05884* 05885 05886 05888 05889
05890 05891 05892 05895 05896 05900 05902 06192
07194* 07213* 07215 07220 07221 07223 07225 07503
07519 08214 08562* 08574 08593 08594* 08595* 08596*
08597* 08598* 08600* 08603 08604 08606 08607 08608
08610 08611 08614 08615 08616 08617 08856
PANCREATITIS,ALCOHOLIC
00669 00676 01112* 01517* 01528 03151 04070* 04075
08601*
PANCREATITIS,BILIARY
05897
PANCREATITIS,CHRONIC
00019 00562* 00662* 00665* 00667* 00669 00672 00675
00676 01257 01402 01517* 01520 01525 01526 01602
02303* 02317* 02319* 02330 02332 02333 02334 02336
02338 02499* 02691* 02692* 03138 03143* 03150 03151
03152 03439 03677 03959* 04067* 04071 04074 04075
04076 04078 04587 04851* 04854* 04855 04856 04857
05265 05418 05464 05666* 05856 05866 05881* 05887
05893 05894 05899 05900 06167 06767 07089 07214
07222 07519 08561* 08564* 08571 08613
PANCREATITIS,CIRCULATION IN
00663* 01529 01530 01531 02323* 03153 04388* 05882*
07218
PANCREATITIS,DISEASES ASSOCIATED WITH
00641* 00662* 00665* 00667* 00671 01115 01378 01506*
01517* 01529 02310 02327 02328 03145* 03149* 03343
04070* 04071 04077 04078 04855 07217 07218 08596*
08601* 08605
PANCREATITIS,DRUG-INDUCED
04390* 08615
PANCREATITIS,ELECTROLYTE METABOLISM IN
07195*
PANCREATITIS,EXPERIMENTAL
00661* 00664* 00666* 00668* 01112* 01518 02321* 02322*
02323* 04066* 04385* 04388* 04390* 05258* 05884* 05891
05892 05897 07223 08594* 08595* 08600* 08611
PANCREATITIS,HEMORRHAGIC
01527 01530 02327 02329 04066* 04075 08599* 08610
PANCREATITIS,METABOLIC CHANGES IN
03148* 04077
PANCREATITIS,SURGICAL TREATMENT OF
04854*

PANCREOZYMIN
00062* 00099* 00102* 00288 00672 01011* 01088* 01102
01109* 01110* 01115 01187 01528 01885* 01908* 01911*
01919 02059 02655* 02691* 02692* 03130* 03131* 03133*
03134* 03486* 03677 04150* 04385* 04387* 04393 04394
04396 04400 04486* 04851* 04880* 05224* 05272 05273
05362* 05519* 06398* 06530* 06553* 06557 07845* 07869*
07959*
PANETH CELLS
01178* 07096

PARACENTESIS,ABDOMEN
SEE ALSO ABDOMEN DIAGNOSIS
04882 05394* 05419 06189 06738
PARASITES AND PARASITIC DISEASES
SEE ALSO AMEBIASIS
SEE ALSO SCHISTOSOMIASIS
04201*
PARASITIC DISEASE DIAGNOSIS
00243 00244 00904 00905 00908 00910 00913 01219*
01230 01248 01264 01755 01756 01808 02375 02410
02433 02538 02539* 02608 03320* 03404 03699 03879
03985 04020 04222 04253 04260 04548* 04563 05043
05054 05058 05084 05459 06280 06297 06357 06726
06727 06744 06774 06786 07491 07616 07621 07695
08014 08034 08477 08715 08920 08921 08924 08926
08943 08982 09006 09012 09026
PARASITIC DISEASE EPIDEMIOLOGY
00888* 00905 00906 00907 00913 00914 00917 00929
00943 00944 00966 01264 01748 01791 01808 02404
02539* 03320* 03341 03342 03406 03410 03441 03985
04020 04205* 04253 05043 05054 06280 06296 06297
06305 06309 06356 06357 07550 07555 07567 07568
07616 07621 07623 07626 07629 07647 07717 08349
08664 08899 08920 08924 08927 08934 08943 08947
09005 09024 09029 07617
PARASITIC DISEASE ETIOLOGY
07129
PARASITIC DISEASE IMMUNOLOGY
05391* 06349
PARASITIC DISEASE PATHOLOGY
01351* 01808 02354 02403 02410 03176 03879 03985
04020 04222 04926 04927 05041 05043 05059 06309
06379 06380 06839 07091 07132 07135 07286 07579
07660 08463 08507 08646 08705 08915 09011
PARASITIC DISEASE PREVENTION
03441 06280 06305
PARASITIC DISEASE PROPHYLAXIS
00905 00906 00913
PARASITIC DISEASE TREATMENT
00397 00717 00718 00719 00720 00852 00888* 00904
00905 00906 00908 00909 00910 00915 00926 00930
00944 00948 00951 00959 01573 01622 01755 01756
01761 01787 01791 01802 01808 02375 02410 02433
02538 02558 02581 03356 03357 03358 03373 03375
03424 03441 03602* 03985 04020 04205* 04222 04247
04253 04255 04260 04523 04889 04983* 05028* 05054
05060 05077 05079 05081 05327 05646 05977 06068
06280 06283 06284 06296 06301 06310 06357 06366
06382 06383 07265 07297 07320 07495 07549 07550
07552 07553 07554 07559 07560 07565 07567 07569
07571 07594 07597 07604 07608 07616 07620 07647
07695 07700 08477 08507 08664 08898 08914 08920
08928 08934 08935 08939 08977 08982 09001 09005
09013 09027 09028
PARASITIC DISEASE-INDUCED SECONDARY MALABSORPTION
00554 01351* 01808 03960* 04201* 05058 05059 05060
05084 07064* 07726* 08412*
PARASITIC DISEASES
SEE ALSO PARASITES AND PARASITIC DISEASES
00581 00625 00865 00988 01183* 01382 01560 01570
01763 01764 01770 02403 02410 02434 02514 02519
02750 02898* 03176 03201 03331 03341 03342 03407
03903 03960* 04014 04020 04133 04245 04251 04512*
04569 04897 04898 04931 04932 04989 05035 05055
05058 05059 05060 05068 05072 05728 05736 05987
06027 06307 06361 06388 06394 06699 06746 06952
07347 07663 08419 08644 08650 08660 08980 08988

PARASITIC DISEASES IN CHILDREN
00973 01748 01791 01808 02608 03405 04260 05084
05646 07545 07550 07551 07555 07571 07647 08702
08927 08943 08968 08971 09024

PARASITIC DISEASES,DISEASES ASSOCIATED WITH
00719 00852 00988 01607* 02586 03060* 03670 04927
05004 07135
PARASITIC DISEASES,PARASITES AND
SEE ALSO AMEBIASIS
SEE ALSO SCHISTOSOMIASIS
04201*

PARATHYROID GLANDS
01090* 01411 01517* 02247 01876* 03439
PARATYPHOID FEVER
SEE ALSO SALMONELLOSIS
01759 03380 05053 06151 06361 07703
PARIETAL-CELL ANTIBODY,GASTRIC
03839
PATHOPHYSIOLOGY,ACUTE PANCREATITIS
08599*
PATHOPHYSIOLOGY,MALABSORPTION
02250 04751* 05881* 06334
PAVLOV POUCH STUDIES
00072* 01080* 01091* 01875* 01877* 01880* 04364* 04383
07844* 07851*
PELLAGRA
00990
PENTAGASTRIN
00051* 00067* 00071* 00078* 00084* 00085* 00104* 00221*
00255 01088* 01103 01108 01316* 01760 01886* 01889*
01894* 01896* 01901 01904 01918 02031* 02033* 02055
02200* 02672* 02673* 02674* 02677* 02679* 02683* 02684*
02690 03444* 03504* 03513* 03515* 03516* 03517* 04550*
05224* 05232* 05235* 05246 05247 05253 06408* 06468*
06529* 06537* 06546 06733 07829* 07837* 07842* 07845*
07847* 07852* 07860
PEPSIN
00261 01189 01897* 03501* 04352* 05254 05255 06695
07047 07745 07840* 07854*
PEPSIN SECRETION,STOMACH
00008* 00067* 00071* 00074* 00082* 00087 00092 00104*
00473* 00496 01080* 01086* 01088* 01327 01876* 01881*
01883* 01885* 01888* 01892* 01897* 02214 02669* 02672*
02674* 02676* 02899* 03000* 03505* 03516* 03632 04354*
04360* 04368 04372 04484* 04724 05233* 05234* 05582
06076* 06530* 06545 07835* 07840* 07848* 08226 08325*
PEPSINOGEN
00261 05226*

PEPTIC ULCER COMPLICATIONS
00277 00472* 00475* 00479* 00486 00488 00491 00495
00502 00505 00508 00509 00515 00933 01297 01319*
01378 01394* 01396* 01399* 01407 01408 01413 01414
01419 01478 01730* 01733* 01782 02098* 02101* 02115
02186* 02190* 02198* 02199* 02203 02209 02213 02214
02215 02219 02511 02584 02585 02614 03012* 03016*
03023 03027 03028 03032 03797* 03919* 03926* 03931
03937 03947 03950 04710* 04714* 04717 04722 04725
04726 04735 04736 05419 05592 05668* 05684 05694
05698 05703 06765 06920 06930 06998* 07000* 07004*
07005* 07007* 07010* 07016 07026 07031 07034 07038
07045 07220 07637 07716 08289 08331* 08341 08343
08347 08348 08367 08380 08381 08389 08392 08403
08603 08865 08893* 08900
PEPTIC ULCER DIAGNOSIS
00085* 00227* 00237* 00485 00494 00502 00511 01193*
01194* 01198* 01202* 01216* 01249 01262 01276* 01308*
01400 01412 01414 01420 01894* 02026* 02031* 02033*
02035* 02047 02101* 02202 02216 02220 02599 02841
03004* 03031 03930 03931 03941 04544* 04556* 05029*
05398* 05401* 05406* 05416 05451 05505 05527 05704
07012* 08326* 08330* 08339 08353 08865
PEPTIC ULCER DIAGNOSIS,RADIOLOGY IN
00198* 00277 00475* 00495 01251 01422 02020* 02051
03865* 04571 05419 05451 07001* 07012* 08960
PEPTIC ULCER EPIDEMIOLOGY
00490 00508 00662* 00751 00960 01304* 01387* 01410
01882* 02195* 02196* 02202 02207 03029 03922* 04362*
04710* 05682 06543 07010* 07014* 07033 08336* 08402
PEPTIC ULCER ETIOLOGY
00072* 00081* 00083* 00099* 00438* 00470* 00474* 00476*
00478* 00482* 00483 00486 00489 00490 00493 00496
00497 00500 00505 00506 00507 00662* 00911 01089*
01090* 01305* 01319* 01336 01387* 01388* 01388* 01389*
01390* 01392* 01397* 01400 01401 01406 01410 01411
01414 01415 01416 01420 01724* 01742 01752 01766
01774 02187* 02189* 02195* 02196* 02203 02204 02206
02207 02211 02214 02216 02227 03002* 03008* 03010*
03019 03029 03033 03439 03922* 03929 03931 03940
03942 03943 04229 04716* 04720 04721 04724 05244
05661* 05689 05701 06996* 07013* 07023 07033 07040
07051 07053 07394* 07566 07838* 08326* 08402 08893*

PEPTIC ULCER ETIOLOGY
CONTINUED
08964 07015*
PEPTIC ULCER HISTOLOGY
02187*
PEPTIC ULCER IMMUNOLOGY
01304*
PEPTIC ULCER PATHOLOGY
00369* 01406 01414 01416 01422 02203 02204 02227
02937 03019 03402 03931 04720 05661* 05692 06996*
07019 07023 07033 08385
PEPTIC ULCER PERFORATION
00342 00479* 00491 00502 00505 00508 00509 01230
01396* 01408 01414 01419 01473 02186* 02190* 02198*
02199* 02213 02214 02219 03011* 03016* 03027 03031
03032 03923* 03947 03950 04710* 04735 04741 05419
05505 05592 05660* 05667* 05673 05684 05694 05698
05703 05862 06920 07002* 07005* 07016 07045 07220
08330* 08331* 08341 08343 08348 08367 08373 08381
08401
PEPTIC ULCER PROPHYLAXIS
02195*
PEPTIC ULCER RADIOLOGY
02841
PEPTIC ULCER SECRETION
01882* 04354*
PEPTIC ULCER SURGERY
00277 00334 00356* 00415 00417 00431* 00440* 00468*
00469* 00470* 00474* 00475* 00479* 00480* 00484 00492
00495 00498 00500 00501 00502 00503 00505 00513
00514 00516 00573 01069* 01255 01308* 01317* 01339
01340 01388* 01388* 01396* 01398* 01399* 01402 01403
01404 01408 01414 01417 01419 01420 01421 01422
01767 02103* 02138 02139 02185* 02186* 02188* 02190*
02192* 02193* 02197* 02198* 02199* 02201 02208 02209
02214 02216 02217 02219 02220 02221 02223 02226
02552* 02584 02762* 02879 02880 02901* 02924 02925
02926 02941 03003* 03006* 03007* 03017 03021 03022
03024 03027 03402 03453* 03644 03797* 03809 03810
03815 03850 03892 03915* 03919* 03920* 03921* 03928*
03933 03948 03950 04631* 04646 04650 04709* 04713*
04714* 04718 04723 04725 04726 05029* 05467* 05547
05582 05593 05660* 05664* 05666* 05667* 05677 05682
05685 05687 05690 06516 06998* 07002* 07003* 07004*
07005* 07007* 07008* 07009* 07017 07019 07028 07030
07031 07033 07034 07036 07051 07822 08140* 08208
08209 08331* 08334* 08343 08346 08354 08373 08385
08386 08394 08395 08399 06367

PEPTIC ULCER TREATMENT
00082* 00107 00402 00418 00470* 00471* 00473* 00476*
00477* 00481* 00482* 00487 00492 00498 00500 00505
00510 00512 00513 00515 00518 00953 00977 01003
01280* 01340 01389* 01391* 01393* 01394* 01395* 01400
01401 01402 01406 01408 01409 01412 01414 01418
01419 01420 01421 02118 02125 02139 02185* 02197*
02198* 02199* 02202 02205 02207 02210 02214 02219
02220 02226 02227 02604 02605 02899* 02998* 02999*
03000* 03001* 03003* 03006* 03007* 03008* 03012* 03017
03024 03025 03365 03718 03794* 03815 03832 03927*
03933 03934 03935 03936 03939 03940 03941 03950
04646 04711* 04718 04723 05029* 05243 05419 05490
05547 05672 05673 05678 05693 05697 05709 06387
06998* 07000* 07001* 07003* 07011* 07017 07019 07024
07030 07031 07033 07038 07045 07051 07053 07054
08221 08339 08346 08374 08394 08395 08401 08865
05685

PEPTIC ULCERS
00048* 00271 00340 00353* 00359* 00396 00495 00750
01287 01340 01505* 01512 02218 02225 02226 02682*
02780 02872 02995 03017 03023 03026 03030 03206
03351 03355 03378 03453* 03657 03919* 03921* 03925*
03930 03931 04154* 04353* 04543* 04644 04709* 04719
04727 05073 05582 05647 05679 07019* 07021 07027
07042 07851* 07855* 07857* 08339 08342 08357 08383
08393 08446*
05662* 05666* 05667* 06790* 06909 06998* 07004* 07007*
07008* 07009* 07010* 08225
PEPTIC ULCERS IN CHILDREN
00277 00485 01322 01415 01778 01811 02026* 04556*
04741 05701 05703 06549 07000* 07028 08353 08381
08960

PEPTIC ULCERS,AGE FACTORS IN
03016* 03024 03033 08346
PEPTIC ULCERS,ANASTOMOTIC
00417 00468* 00493 00507 02098* 05673 07008*
PEPTIC ULCERS,BLEEDING
00235* 00472* 00488 00491 00502 00505 00515 00933
01297 01407 01413 01627* 01730* 01782 02098* 02115
02199* 02203 02209 02214 02215 02584 02585 03011*
03012* 03351 03919* 03926* 03937 04203* 04714* 04725
04726 05029* 05033* 05668* 05684 06765 07026 08380

PEPTIC ULCERS,BLEEDING
CONTINUED
08389 08392 08865 08897* 08900 07004* 07005* 07010*
PEPTIC ULCERS,CIRCULATION IN
02685
PEPTIC ULCERS,CLINICAL STUDIES OF
07033
PEPTIC ULCERS,DISEASES ASSOCIATED WITH
00072* 00316* 00380 00506 01090* 01321* 01394* 01411
02191* 02511 02937 03029 03918* 03931 04154* 04726
05705 05860 05874 06898 07013* 08223 08375
PEPTIC ULCERS,DRUG TREATMENT OF
03927* 08384 08385 08391
PEPTIC ULCERS,FREEZING TREATMENT OF
00409 00411 02098* 08329*
PEPTIC ULCERS,HORMONAL CONTROL OF
00476* 03030 06387
PEPTIC ULCERS,MEDICATIONS IN TREATMENT OF
07043
PEPTIC ULCERS,METABOLIC CHANGES IN
00476* 00481* 02345* 05691
PEPTIC ULCERS,PERFORATED
07038
PERFORATED PEPTIC ULCERS
07038
PERFORATIONS,ABDOMEN
07606
PERISTALSIS
00060 00361* 00398 00399 00408 00439* 00610 00622
00998 01057 01074* 01211* 01261 01381 01383 01870
02158 02540* 02576 02638 02653* 02658 02659 02760*
02789 02917 02924 03363 03499 03638 03727 03749
03842 03856 04338* 04342 04540 04631* 04648 05074
05202 05204 05548 05594 05627 05730 06325 06372
06515 06975 07816 07821 08020 08123 08124 08251*
PERITONEAL ENDOSCOPY
01196* 08026
PERITONEOSCOPY
02009* 02781 02791 04122
PERITONEUM
00758 01271 01481 01806 02282 02766* 02977 03330
03401 03625 04518 04698 05373 05693 06273 06292
06435 07016 07372 07584 07591 08908 08912 08945
PERITONEUM DIAGNOSIS
01245 02597 02781 03401 03623 04683 05410 06045
PERITONEUM RADIOLOGY
SEE ALSO PERITONEUM DIAGNOSIS
01245 02597
PERITONEUM ULTRASTRUCTURE
07586 07607
PERITONITIS
00239* 00443 00460 00491 00561* 00601 00632 00756
00908 00972 00975 00992 00997 01215* 01350* 01466
01536* 01555 01607* 01661 01788 01807 02159 02186*
02530 02561 02574 02593 02597 02928 03070* 03083*
03113 03201 03220* 03313* 03329 03330 03343 03401
03419 03434 03623 03858 03873 03875 03889 03981
03992 04005 04017 04024 04050 04193* 04209* 04248
04249 04671 04683 04690 04811 05018 05027* 05056
05074 05394* 05623 05712 05818 05827 05871 05948
06173 06187 06327 06336 06369 06375 06377 06948
06977 07120 07151 07503 07576 07582 07584 07606
07637 07665 07666 08178 08408 08479 08517 08540
08885 09014 09020
PERITONITIS DIAGNOSIS
08033
PERITONITIS ETIOLOGY
04040 04231 04240 04241 04242 04243 04244
PERITONITIS IN CHILDREN
05076 07564
PERITONITIS TREATMENT
00895* 00896* 00948 01245 01753 01812 02616 03091
03992 04040 04193* 04231 04240 04241 04242 04243
04244 05926* 06289 07481 07521* 07636 07699 08401
08444* 08894*
PERITONITIS,ACUTE
08033
PERITONITIS,BILE
00896* 03293 04196* 04240 07480 07521* 08841
06376 03293

PERITONITIS,EXPERIMENTAL
01812
PERNICIOUS ANEMIA
00357* 00365* 00709* 01054 01884* 02015* 02109 02122
03014* 03490* 03814 03839 03840 05093* 05094* 05111*
05165* 05401* 05521* 06464* 06708* 06709* 06864* 06866*
06886 06887 06906 07959* 08190 08197 08239 08988
PERSONALITY FACTORS
01388* 01388* 03060* 04189*

PEUTZ-JEGHERS SYNDROME
00452 00462 01359 01457 02180 03911 05798 06955

PHAGOCYTOSIS
01963
PHLEBOGRAPHY
08043
PHOPHATASE,ALKALINE
01987* 02056

PHOSPHATASE,ACID
00172 01161 01655* 01949 01950 02322* 02418* 03446*
04417* 04423* 04918 05133 06425 06672 06962 07366*
07953
PHOSPHATASE,ALKALINE
00002* 00065* 00234* 00267 00528* 00545 00683* 00772*
00889* 00991 01008* 01017* 01119* 01205* 01209* 01247
01313* 01558 02012* 02034* 02322* 02341* 02418* 02641*
02718 02813 02851 03214 03215 03565 03615* 03801*
03959* 04090* 04440 04545* 04861* 04905 05208* 05313
05937 06054* 06123 06486 06672 06677 06769 06962
06966 07366* 07965* 08008* 08638* 08698 08753*
PHOSPHATASES
04440
PHOSPHOLIPASE A SECRETION,PANCREAS
01516* 08598*
PHOSPHOLIPASE SECRETION,PANCREAS
05884*
PHOSPHOLIPID METABOLISM
01112* 01719 04276* 04308 06065
PHOSPHOLIPID METABOLISM,LIVER
00117* 00121* 00151 00161 00168 01154 01969 02626*
02707* 03558 03559 05282* 05291* 05301 05404* 05953
06128* 06134* 06422 06424 06598* 06599* 06600* 06614
06615 07730* 07734* 07875 07926
PHOSPHOLIPIDS
00041 01714 02434 04292 05292* 05364* 06642 07213*
PHOSPHORUS
00769* 02101*
PHOSPHORUS ABSORPTION
01313* 03959* 03965 05580
PHYSICAL TREATMENT OF GASTROINTESTINAL TRACT
06248
PIGMANTS,BILE
05295*
PIGMENT,BILE
05123
PIGMENTATION
00565* 02286
PINEAL GLAND
04442
PINOCYTOSIS
01851
PITUITARY GLAND
00789 01086* 01132* 01134* 01139* 01191 01289 01990
03502 05342 05876
PLASMA ENZYMES
03223
PLASMA LIPIDS
00184*
PLASMA MEMBRANE
01828

PLASMA PROTEINS
00110* 00200* 00211* 00215* 00261 00264 00265 00267
00279 00291 00294 00494 00519* 00521 00539 00540
00553 00562* 00681* 00684* 00726 00763 00771* 00777*
00787 00812 00813 00840 00921 00924 00996 01120*
01146* 01153 01338 01427* 01429* 01432 01494* 01535*
01550* 01552* 01564 01606* 01615 01619 01644 01648*
01649* 01652* 01664 01764 01936 01963 02000* 02004*
02006* 02018* 02019* 02045 02056 02188* 02341* 02387
02439 02441 02449 02468 02484 02545* 02546* 02624*
02721 02731 02751 02752 02811 02812 03004* 03042*
03218* 03249 03386 03437 03581 03669 03863* 04042*
04146 04456 04475 04512* 04572 04953 05039 05099*
05359* 05426 05442 05704 05726 06024 06327 06577*
06652 06913 07659 07685 08640* 08753* 0881706093* 07
PLASMA PROTEINS,LIVER
02191* 02343* 02345* 02453* 02454* 02456* 02639 02721
06054*

PLATELETS
01740
PNEUMATOSIS CYSTOIDES INTESTINALIS
02167 02290 02547* 06386 06960 08475
POLYPOSIS
00452 00635 01484 02180 02274 02610 02935 03911
04658 06253 06896 06955 07119 07128 07172 08214
08536 08544

POLYPOSIS,RECTOCOLONIC
00578 [illegible] 01457 03987 03988 04769 04780 05813
05819 031

POLYPS
SEE ALSO PEUTZ-JEGHERS SYNDROME
00452 03747
POLYPS,DUODENUM
02987
POLYPS,ESOPHAGUS
05715
POLYPS,GALLBLADDER
06180 06212
POLYPS,GASTROINTESTINAL
00462 02180 02551* 03911
POLYPS,LARGE INTESTINE
00578 00579 00592 00596 00599 00611 01457 02273
02274 02610 03093 03095 03104 03883 03972* 03973*
03986 03987 03988 04015 04033 04037 04212 04759*
04769 04780 05776 05813 05819 06990 07119 07137
07141 08470 08544 08993
POLYPS,RECTUM
00250 00578 00592 01448* 01452* 01477 02053 03088
03705 03972* 04706 04759* 05417 05776 05819 07128
08499 08506 08525 08536
POLYPS,SMALL INTESTINE
00452 00462 01359 02610 03908 06990 08993
POLYPS,STOMACH
00227* 00427 01336 02911* 02935 02986 03614* 03824
03846 03855 05584 06928 08214 08227 08239
POLYSACCHARIDES
01114 01828
PORPHYRIA
00693* 01175 01768 02399 02408 02770 03154* 03412
03716 04086* 04089* 04111 04462 04884 04901 05112*
06231* 06607 06719* 06884 07228* 07266 07657
PORTACAVAL SHUNT
00099* 00312* 00687* 00708* 00711 00818* 00822* 00823*
00827* 00899* 01191 01291 01541* 01546* 01587 01588
01589 01590 01591 01647* 01652* 01658 01670 01760
02001* 02066* 02350* 02362 02371 02373 02384 02385
02412 02471* 02478 02553* 02885 03133* 03202 03258*
03268 03508* 03514* 03735* 03738* 04378 04388* 04504*
04970 04972 05029* 05152 05240 05348 05385 05487
05489 05908* 05970 06018 06096* 06101* 06102* 06106
06124 06534* 06706 06844 07029 07330 07335 07341
07349 07423* 07437 07454 07457 07852* 07928 08069*
08326* 08618* 08667 08781* 08783* 08784* 08786* 08787*
08791 08803 06689*
PORTACAVAL SHUNT IN PORTAL HYPERTENSION TREATMENT
03286*

PORTAL CIRCULATION
00179* 00182* 00204* 00214* 00243 00245 00260 00687*
00702* 00721 00744 00821* 00823* 00839 00899* 00957
01036* 01161 01191 01518 01533* 01549* 01587 01591
01605 01652* 01939 02373 02703* 02744 03167* 03172*
03196 03474 03562 03735* 04119 04157 04388* 04460
04497* 04501* 04518 04532 04533 04535 04570 04889
04962* 04967 05141 05144 05152 05157* 05347 05379*
05851 05962 06022 06041 06060 06102* 06104 06113
06461 06685* 06706 07269 07305 07977 07979 07983
08036 08037 08038 08532 08654 08657 08713 08884
PORTAL HYPERTENSION
00726 00821* 01256 01351* 01518 01549* 01588 01605
01668 01760 02357 02444 02477* 02480 02491 02494
03172* 03202 03262* 03274 03637 03735* 03738* 04113
04120 04157 04252 04501* 04898 04915 04962* 04964*
04973 04974 05234* 05479 05499 06027 06046 06101*
06102* 06106 06112 06113 06141 06341 06682* 06843
07269 07286 07312 07327 07330 07357 07423* 07443
07454 07979 08069* 08109 08195 08244* 08635* 08677
08787* 08809 08810 08816 08822
PORTAL HYPERTENSION DIAGNOSIS
00204* 00223* 00245 00699* 00711 02821 02831 03738*
04115 04117 06041 07430* 08658 08689 08704
PORTAL HYPERTENSION DIAGNOSIS,RADIOLOGY IN
00204* 05448
PORTAL HYPERTENSION ETIOLOGY
00699* 00708* 00711 02401 03286* 03448* 03738* 04388*
04535 04607 04860* 04867* 05381* 05929 07347
PORTAL HYPERTENSION IN CHILDREN
00708* 04110 04115 04914 05448 05449 05970 06039
07305 08704 08812
PORTAL HYPERTENSION PATHOLOGY
00711 03206 06796* 07426*
PORTAL HYPERTENSION SURGERY
02350* 05924* 06041 06917 08657
PORTAL HYPERTENSION TREATMENT
00204* 00312* 00699* 00708* 00711 00755 00822* 00823*
00827* 01291 01587 01652* 01658 01667 01673 02066*
02350* 02371 02373 02471* 02478 02487 02848 02885
03258* 03268 03286* 03738* 04160 04607 04860* 04867*
04965* 04970 04972 05487 05489 05924* 05952 05970

PORTAL HYPERTENSION TREATMENT
CONTINUED
05995 06017 06039 06124 06844 07029 07328 07335
07341 08647 08657 08658 08689 08781* 08789 08791
08798 08803 08815
PORTAL HYPERTENSION TREATMENT,PORTACAVAL SHUNT IN
03286*
PORTAL HYPERTENSION,CIRCULATION IN
06682*
PORTAL HYPERTENSION,DISEASES ASSOCIATED WITH
00699* 00708* 01673 02066* 02482 03196 03738* 04160
05025* 05924* 06018 07029 08069* 08813
POSTNECROTIC CIRRHOSIS
07257*
POTASSIUM
00788 01085* 01107 01654* 01669 02388 02425 02470*
02687 03362 06609
POTASSIUM ABSORPTION
00030* 02130 02646 02667 03202 03362 04309* 04418*
05580 05841 06179 06979 07781*
POTASSIUM METABOLISM
07910
POUCH STUDIES,HEIDENHAIN
00071* 00080* 01082* 01083* 01091* 01101 01108 01117*
01875* 01877* 01879* 01887* 01890* 02669* 02680* 02684*
02741* 02964* 03508* 03514* 03516* 03517* 03928* 04364*
04366* 04484* 05161* 05234* 05595* 06468* 06508* 06532*
07842* 07843* 07844* 07852* 07854* 07857* 08325* 05160*
05229* 06529*
POUCH STUDIES,PAVLOV
00072* 01080* 01091* 01875* 01877* 01880* 04364* 04383
07844* 07851*

PREGNANCY
00232* 00478* 00504 00552 00556 00692* 00738 00784
00972 01066 01458 01479 01571 01580 01610 01683
02413 02414 02458* 02469 02492 02650 02744 02967
03160* 03177 03179 03193 03337 03842 03894 03992
04019 04258 04325 04458 04744 04746 04884 04908
05011 05287* 05601* 05696 05814 05917* 05957 05960
05981 06143 06393 06953 07351 07418 07465* 07582
07935 07953 08275 08367 05705
PREGNANCY,HEPATITIS IN
03254 04956 04957
PRESSURE STUDIES,MOTILITY
SEE ALSO ANUS MOTILITY
SEE ALSO BILIARY TRACT MOTILITY
SEE ALSO ESOPHAGUS MOTILITY
SEE ALSO GALLBLADDER MOTILITY
SEE ALSO GASTROINTESTINAL MOTILITY
SEE ALSO LARGE INTESTINE MOTILITY
SEE ALSO SMALL INTESTINE MOTILITY
SEE ALSO STOMACH MOTILITY
00049* 00054* 00310* 00314* 01069* 01070* 01201* 01214*
01239 01862* 02065* 02656* 02760* 02761* 02816 02912*
03695 03704 03739* 04565 06799* 07813* 08439*
PREVENTION,PARASITIC DISEASE
03441 06280 06305
PREVENTION,SALMONELLOSIS
02619* 03332 06260 06391
PRIMARY MALABSORPTION
00451 00464 00526* 00527* 00528* 00530* 00531 00532
00540 00541 00544 00547 00549 00555 00556 00557
00559 01183* 01215* 01427* 01429* 01430* 01441 01443
02235* 02237* 02239* 02246 02763* 02810 03039* 03040*
03045* 03046 03050 03053 03054 03056 03057 03058
03059 03391 03871 03959* 03964 04838 05036 05429
05446 05718* 05721* 05727 05729 07062* 07075 07078
07081 07082 07088 07092 07096 08409* 08413* 08423
08424 08429
PROCTOSIGMOIDOSCOPY
08046 05715

PROLAPSE
00326 00378 00405 00427 00572 00594 00602 01333
01481 02291 02596 03976* 04768 04816 04838 05794
06890 07122 07148 08230 08318 08448 08460 08491
08525
PROLAPSE,RECTUM
05809 08553

PROSTHESIS,COMMON BILE DUCT
00845*
PROSTHESIS,ESOPHAGUS
01303 02086 02881 05488 06813 06854 08096 08122
08123 08124
PROSTHESIS,GASTROINTESTINAL
00989
PROSTHESIS,LARGE INTESTINE
02271

PROTEASE
01188
PROTEASE SECRETION,PANCREAS
00094* 00100* 01438 01508 02320* 04386*
PROTEIN ABSORPTION
00002* 00033* 00551 01062 01438 01845* 02125 02236*
02763* 03022 03386 04320* 05730 06483 07445 07802
07828*
PROTEIN ABSORPTION,LIVER
07931
PROTEIN DEFICIENCY
06636 06970
PROTEIN DIGESTION
00033* 00185* 01188 01189 01275* 01508 01906* 02023*
02763* 03632 04372 04563 05254 05255 05367* 05598*
07828*

PROTEIN METABOLISM
00188 00197* 00531 01023* 01169 01426* 01427* 01741
02125 02304* 02554* 02665 03042* 03386 03497* 03632
04228 04313* 04842 05359* 05442 05734 06260 06459
06637 06641 07830 08287 08680 08681
PROTEIN METABOLISM,LIVER
00108* 00109* 00114* 00118* 00127* 00138* 00141* 00165
00172 00226* 00691* 00702* 00763 00771* 00915 01038*
01120* 01122* 01127* 01132* 01133* 01135* 01139* 01144*
01151 01153 01170 01538* 01555 01602 01619 01648*
01836 01946 01952 01957 01964 01970 02392 02394
02431 02451 02460* 02468 02484 02694* 02697* 02717
02721 03137 03249 03446* 03533* 03539* 03556* 03584
04098 04275* 04424* 04433* 04446 04456 04458 04475
04953 05278* 05288* 05334 05339 05355 05404* 05953
06023 06468* 06470* 06525 06567* 06577* 06579* 06580*
06604 06606 06707* 07317 07431* 07887* 07893* 07899*
08618* 08630* 08728* 08753*
PROTEIN SECRETION,PANCREAS
00102* 00104* 01087* 01113* 01143* 04387* 05271 06398*
06530*
PROTEIN SYNTHESIS
00125* 00127* 00165 00226* 00763 00771* 00996 01022*
01111* 01120* 01122* 01127* 01139* 01144* 01151 01153
01158 01169 01170 01179* 01427* 01538* 01950 01952
01964 01966 01971 02428 02460* 02729 03386 03533*
03563 04313* 04451 04456 04475 04953 05156* 05334
05339 05375 06023 06317 06398* 06565* 06577* 06580*
06669* 07830 08191 08640* 08740
PROTEIN SYNTHESIS,LIVER
06646 07242*
PROTEIN-LOSING ENTEROPATHY
00002* 00197* 00264 00449 00521 00533 00551 00553
00888* 00987 01427* 01432 01435 02006* 02545* 02546*
02810 03042* 03055 03267* 03386 03433 03629 04252
04512* 05429 05721* 05734 06403* 06490 07075 07429*
08411* 08414 08428 07068*

PROTEINS
00767* 04202* 04411* 04861* 04982*
PROTEINS,LIVER
01823 01825 01981 06000
PROTEINS,LIVER PLASMA
02191* 02343* 02345* 02453* 02454* 02456* 02639 02721
06054*

PROTEINS,LIVER SERUM
04158 08774
PROTEINS,PLASMA
00110* 00200* 00211* 00215* 00261 00264 00265 00267
00279 00291 00294 00494 00519* 00521 00539 00540
00553 00562* 00681* 00684* 00726 00763 00771* 00777*
00787 00812 00813 00840 00921 00924 00996 01120*
01146* 01153 01338 01427* 01429* 01432 01494* 01535*
01550* 01552* 01564 01606* 01615 01619 01644 01648*
01649* 01652* 01664 01764 01936 01963 02000* 02004*
02006* 02018* 02019* 02045 02056 02188* 02341* 02387
02439 02441 02449 02468 02484 02545* 02546* 02624*
02721 02731 02751 02752 02811 02812 03004* 03042*
03218* 03249 03386 03437 03581 03669 03863* 04042*
04146 04456 04475 04512* 04572 04953 05039 05099*
05359* 05426 05442 05704 05726 06024 06327 06577*
06652 06913 07659 07685 08640* 08753* 08817 06093*
07423*
PROTEINS,SERUM
07238*
PROTEINUREA
02595
PRURITIS ANI
03099
PSEUDOCYSTS,PANCREAS
05854 05856
PSEUDOMEMBRANOUS ENTEROCOLITIS
02259 02267 05747
PSYCHOLOGICAL FACTORS
00225* 00351 00474* 00517 00941 00981 01388* 01388*
01415 01418 01495* 01496* 01564 02206 02231 02489
02563 02564 02565 02566 02568 02574 02919 03060*

PSYCHOLOGICAL FACTORS
CONTINUED
03125 03199 03366 03379 03389 03394 03918* 03952*
04189* 04246 05073 05834 05845 06307 07021 07326
07553 07627 07697 08431* 08449 08461 08531 08549
08932 08964 08973
PSYCHOLOGICAL STUDIES
SEE ALSO PEPTIC ULCERS
SEE ALSO ULCERATIVE COLITIS
03952*
PSYCHOTHERAPY
02563 02564
PURPURA
07351
PYLORIC ANTRUM
00005* 00050* 00051* 00082* 00084* 00217* 00359* 00377
00378 00491 01072* 01100 01117* 01193* 01198* 01309*
01818* 01875* 01877* 01879* 03008* 03499 03522 03644
04339* 04648 05186* 05199 05227* 05583 05587 05883*
06874 06883 06894 06895 06934 07044 07815* 07838*
08244*
PYLORIC BAND
01341
PYLORIC OBSTRUCTION
00091 00391 00399 00401 00405 00408 00412 00413
01072* 01310* 01322 01326 01341 01365 01424 01512
01870 02051 02189* 02575 02911* 02927 03301 03718
03757 03820 03825 03829 03835 03837 03910 04636
04640 05587 05608 06838 06931 06960 06963 08139*
08155 08156 08168 08186 08211 08226 08334*
PYLORIC SPHINCTER
06909
PYLORIC STENOSIS
06933
PYLOROPLASTY
00308* 00309* 00401 00469* 00470* 00479* 00480* 00484
00497 00500 00503 00525 01287 01294 01308* 01310*
01316* 01391* 01396* 01398* 01403 01404 01417 01419
01422 01752 01760 01811 02136 02192* 02193* 02194*
02197* 02198* 02214 02217 02584 02924 02926 02932
03008* 03032 03525 03757 03826 03829 03916* 03921*
03924* 03938 03944 03945 03946 04636 04640 04713*
04714* 04732 04739 05199 05475 05549 05554 05582
05672 05678 05687 06274 06793* 06914 06947 06998*
07002* 07004* 07007* 07009* 07017 07046 07650 08063*
08108 08328* 08331* 08344 08361 08395 08834*
PYLORUS
06975 07044 08209 08324*

RACE FACTORS
02406
RADIATION EFFECTS ON LIVER
02722 03578
RADIATION THERAPY IN CANCER TREATMENT
02288 02883 02896 02950 06848 07520*
RADIATION,TOXIC EFFECTS OF
SEE ALSO TOXIC EFFECTS ON ABSORPTION
SEE ALSO TOXIC EFFECTS ON BILIARY TRACT
SEE ALSO TOXIC EFFECTS ON ESOPHAGUS
SEE ALSO TOXIC EFFECTS ON GASTROINTESTINAL TRACT
SEE ALSO TOXIC EFFECTS ON LARGE INTESTINE
SEE ALSO TOXIC EFFECTS ON LIVER
SEE ALSO TOXIC EFFECTS ON PANCREAS
SEE ALSO TOXIC EFFECTS ON RECTUM
SEE ALSO TOXIC EFFECTS ON SALIVARY GLANDS
SEE ALSO TOXIC EFFECTS ON SMALL INTESTINE
SEE ALSO TOXIC EFFECTS ON STOMACH
00159 00298 00433* 00655 00771* 01077 01167 01173
01344 01726* 01812 01984 02587 02664 03480* 03491*
03576 03902 04287 04480 04777 04787 04797 05632
05725 05826 06045 06496 06666* 07379 07817 07905
07972* 07987 08143* 08972
RADIOGRAPHY,BILIARY TRACT
07479
RADIOISOTOPE STUDY TECHNIQUES
SEE ALSO TRACER STUDIES
04546* 07779* 07814* 08006* 08595* 08620*
RADIOLOGY IN BLEEDING DIAGNOSIS
00250 00347 01260 01369 01782 02002* 02048 02215
03328* 03642 03651 03652 03653 03717 03833 05029*
06341 06950 07993*
RADIOLOGY IN CANCER DIAGNOSIS
00198* 00219* 00303 00354* 00410 00455 00867 01195*
01199* 01262 01263 01285 01333 01461 01490 01780
02366 02758* 02845 03089 03290* 03637 03647 03693
03795* 03975* 03977* 04010 04059 04162 04555* 05400*
05423 05575 05641 05681
RADIOLOGY IN CIRRHOSIS DIAGNOSIS
04966 08792
RADIOLOGY IN GASTRITIS DIAGNOSIS
00392 00421
RADIOLOGY IN JAUNDICE DIAGNOSIS
03707 08001*

RADIOLOGY IN LIVER DIAGNOSIS
00536* 05910*

RADIOLOGY IN PEPTIC ULCER DIAGNOSIS
00198* 00277 00475* 00495 01251 01422 02020* 02051
03865* 04571 05419 05451 07001* 07012* 08960

RADIOLOGY IN PORTAL HYPERTENSION DIAGNOSIS
00204* 05448

RADIOLOGY IN STOMACH DIAGNOSIS
06859*

RADIOLOGY IN ULCERATIVE COLITIS DIAGNOSIS
00203* 00635 04045 05846

RADIOLOGY,ABDOMEN
SEE ALSO ABDOMEN DIAGNOSIS
00228* 00272 00273 00348 00407 00457 00626 00738
01268 01271 01362 01617 01668 01777 02017* 02032*
02036 02166 02579 02596 02766* 02775 02826 02859
02959* 03031 03314* 03336 03430 03435 03623 03628
03638 03701 03726 03887 03889 03999 04210 04257
04586 04588 05157* 05408 05419 05438 05461 05504
06199 06275 06321 06338 06779 06978 07178 07294
07606 07696 08011 08032

RADIOLOGY,ANUS
SEE ALSO ANUS DIAGNOSIS
01214* 03703 04340 07097* 08440*

RADIOLOGY,BILIARY TRACT
SEE ALSO BILIARY DISEASE DIAGNOSIS
00212* 00218* 00248 00270 00282 00283 00300 00307
00682* 00872 00881 01207* 01212* 01213* 01227 01237
01239 01243 01247 01253 01266 01560 01676* 01677*
01685 01687 01689 01692 02028* 02040 02302* 02497*
02520 02522 02756* 02784 02785 02800 02819 02832
02856 02860 03028 03281* 03284* 03290* 03299 03302
03363 03609* 03631 03665 03687 03693 03704 03712
03713 03865* 04175* 04176* 04177* 04181 04185 04187
04569 04570 04573 04589 04698 05012 05015 05415
05433 05444 05456 05464 06019 06136* 06154 06216
06238* 06693 06721 06722 06768 06773 06788 07467*
07468* 07478 07490 07505 07512 08001* 08058 08880

RADIOLOGY,DUODENUM
00269 00280 00514 01198* 01378 01380 02026* 02332
02516 02773 02982 02986 03484 03618* 03693 03710
04339* 04687 04691 04703 05444 05641 06370 06736
06934 06956 07039 08244* 08268

RADIOLOGY,ESOPHAGUS
00229* 00247 00304 00315* 00322 00323 00325 00327
00340 00341 00343 00347 00351 01074* 01198* 01261
01272* 01273* 01276* 01277* 01282 01285 01290 01300
01301 02002* 02007* 02087 02088 02089 02093 02094
02096 02804 02822 02863* 02870* 02887 02888 02893
02897 03269 03500 03640 03646 03655 03685 03686
03709 03724 03726 03727 03730* 03732* 03742 03743
03745 03746 03747 03749 03752 03754 03761 03765
03766 03769 03771 03772 03774 03777 03780 04046
04234 04601* 04617 04618 04620 04621 05042 05048
05149 05434 05435 05452 05476 05481 05482 05485
05490 05493 05496 05506 05924* 06785 06794* 06808
06819 06827 06832 06833 06834 06835 06836 06839
06857 08005* 08054 08072* 08079* 08080* 08083 08087
08088 08090 08091 08097 08099 08102 08103 08106
08114

RADIOLOGY,GALLBLADDER
SEE ALSO GALLBLADDER DISEASE DIAGNOSIS
00248 00307 00415 00858 00859 00866 00872 00992
01212* 01703 02016* 02347* 02756* 03309 03311 03611*
03712 04170* 04174* 04181 04183 04187 06164 06204
06205 06216 06221 06418 06788 07468* 07474 08826*

RADIOLOGY,GASTROINTESTINAL
SEE ALSO GASTROINTESTINAL DIAGNOSIS
00240 00249 00268 00277 00280 00289 00293 00410
00467 00551 00552 00902* 00904 00923 00962 00967
00977 00992 01053 01075* 01077 01198* 01236 01260
01264 01341 01343 01412 01422 01446* 01756 01858*
02017* 02044 02178 02576 02596 02777 02778 02841
02846 02849 02855 02915 02916 02956 02986 03115
03322* 03363 03372 03630 03639 03642 03656 03659
03675 03676 03680 03717 03726 03727 03761 03865*
03866* 03872 03887 03893 03930 03956 03957 03990
03999 04055 04198* 04217 04234 04235 04236 04252
04559 04565 04570 04571 04626* 05415 05419 05420
05439 05460 05715 05814 06245 06250 06251 06358
06367 06387 06724 06736 06758 06763 06788 06884
06935 06956 07012* 07639 07646 07832 08024 08041
08048 08059 08446* 08567 08573 08587 08704 08851
08896* 08919 08960

RADIOLOGY,LARGE INTESTINE
00256 00348 00576 00592 00598 00599 00603 00635
01211* 01240 01259 01263 01265 01447* 01457 01461
01471 02046 02265 02277 02290 02299 02853 02959*
03086 03089 03093 03103 03121 03125 03484 03624
03625 03658 03660 03679 03905 03907 03957 03970*
03971* 03983 03984 03986 03999 04018 04027 04029
04034 04039 04045 04048 04342 04547* 04568 04682
04780 04796 05084 05375 05399* 05458 05768 05777
05797 05814 05823 05825 06742 06778 07112 07117
07130 07133 07137 07138 07142 07144 07149 07152
07182 07186 07192 08040 08433* 08438* 08459 08468

RADIOLOGY,LARGE INTESTINE
CONTINUED
08519 08520 08529

RADIOLOGY,LIVER
SEE ALSO LIVER DIAGNOSIS
00204* 00222* 00223* 00243 00244 00245 00254 00260
00272 00273 00289 00290 00682* 00733 00735 00786
01195* 01200* 01224 01248 01253 01574 01595 01832
01920* 02009* 02010* 02029* 02032* 02049 02349* 02350*
02366 02377 02411 02630 02799 02809 02821 02835
02848 02854 03175 03216 03450* 03611* 03664 03670
03671 04092* 04096 04117 04210 04218 04520 04551*
04555* 04570 04574 04580 04875* 04926 04966 05068
05152 05376* 05402* 05414 05449 05487 05906* 05929
05993 05994 06044 06426 06459 06700 06701 06711*
06717* 06720* 07229* 07235* 07241* 07245* 07269 07294
07295 07435 07990* 07998* 08006* 08024 08654 08783*
08787*

RADIOLOGY,MESENTERY
00214* 00456 03418 03698 03872 04250 05642 05924*
07694 07995* 08855

RADIOLOGY,PANCREAS
00199* 00205* 00208* 00644* 00654 00949 01257 02032*
02039 02302* 02315 02758* 02782 02785 02795 02844
03136 03143* 03153 03530* 03663 03693 04055 04077
04553* 04592 04858 05854 05861 05902 06074* 06724
06788 07194* 07197* 07198* 07204 07207 07999* 08002*
08007* 08561* 08579

RADIOLOGY,PEPTIC ULCER
02841

RADIOLOGY,PERITONEUM
SEE ALSO PERITONEUM DIAGNOSIS
01245 02597

RADIOLOGY,RECTUM
00586 01214* 02278 03647 05417 06912 08440*

RADIOLOGY,SALIVARY GLAND
00298 00892* 03700 04560 06384

RADIOLOGY,SMALL INTESTINE
00256 00276 00454 00455 00475* 00518 00521 01197*
01199* 01210* 01240 01251 01258 01350* 01359 01378
01429* 01756 02020* 02149* 02163 02172 02176 02179
02658 02763* 02774 02789 02820 02957* 02959* 02970
02976 02980 02985 02994 03041* 03046 03200 03484
03625 03629 03638 03652 03653 03680 03684 03696
03864* 03871 03891 03912 03999 04064 04342 04558*
04682 04684 04687 04692 04703 04738 05623 05638
05642 05652 05654 05655 05681 05715 05728 05738*
06130* 06716* 06778 06950 06974 06975 06985 06995
07012* 07057 07142 07506 08261 08264 08280 08411*
08421 08938

RADIOLOGY,STOMACH
00198* 00227* 00280 00285 00287 00303 00323 00354*
00355* 00369* 00377 00378 00379 00399 00408 00414
00473* 01198* 01210* 01238 01250 01256 01262 01269
01270 01308* 01334 01346 01403 02002* 02013* 02022*
02104* 02110 02114 02121 02126 02128 02132 02134
02135 02220 02575 02599 02659 02768* 02792 02794
02918 02931 02937 02947 02986 03123 03269 03500
03614* 03626 03640 03641 03652 03653 03656 03661
03680 03681 03724 03726 03811 03816 03818 03833
03838 03847 03860 03932 04064 04571 04593 04631*
04648 04651 04728 05042 05048 05182 05486 05494
05527 05538 05553 05583 05584 05586 05587 05690
05924* 06370 06698 06719* 06751 06757 06775 06784
06794* 06857 06859* 06861* 06874 06884 06896 06901
06905 06911 06916 06975 07037 08004* 08168 08169
08193 08210 08211 08213 08219 08226 08239 08244*
08318 08388

RADIOLOGY,TOXIC EFFECTS OF
07908

RADIOLOGY,ULCERATIVE COLITIS
02300 05837

RADIOTELEMETRY
00302 00418 01053 02760* 02818 04371 04565 05430
05432

RADIOTHERAPY
00727 01395* 02216 03733* 05803 06584

RADIOTHERAPY IN CANCER TREATMENT
00433* 00605 00609 00616 01285 01302 01332 01490
01566 01726* 02081 02082 02083 02085 02086 02087
02184 02268 02270 02583 02871* 02907* 03647 03753
03817 04116 04605 04777 05542 05790 05826 06889
07705 08071* 08093 08121 08170 08450

RATE,CANCER SURVIVAL
05567 06849 07124 07355

REALTIONSHIRS,GENETIC
05917*

RECTAL FISTULAS
07788

RECTOCOLITIS,HEMORRHAGIC
05833* 07193

RECTOCOLONIC POLYPOSIS
00578 00624 01457 03987 03988 04769 04780 05813
05819 03104

RECTUM
SEE ALSO HEMORRHOIDS
SEE ALSO POLYPS
SEE ALSO PROCTOSIGMOIDOSCOPY
SEE ALSO ULCERATIVE COLITIS
00567* 01464 03115 03120* 04045 04708* 04798 04814
05387 05794 06667* 06754 07116
RECTUM ANOMALIES
00293 00567* 00582 01470 01475 01481 03071* 03991
04768 04806 07122 08440* 08490 08499 08553
RECTUM BIOCHEMISTRY
01452*
RECTUM BIOPSY
00297 00609 00624 00626 02053 02254* 02259 02272
02595 03699 04008 04008 04012 04014 05417 05767
05780 07187 08034 08484
RECTUM CANCER
00203* 00407 00566* 00577 00593 00604 00605 00611
00623 00624 00637 00984 01445* 01448* 01452* 01480
01490 01497* 02268 02270 02278 02281 02288 03061*
03079* 03647 03705 03969* 03972* 04019 04036 04038
04195* 04706 04759* 04764* 04777 04791 04801 04802
04803 05088 05762 05767 05787 05791 05793 05799
05817 05824 05827 05831 05905* 06144 06350 07101*
07108* 07136 07177 08050 08443* 08450 08464 08510
08538 08546
RECTUM CIRCULATION
03116* 03698
RECTUM CYSTS
08503
RECTUM DIAGNOSIS
00225* 00293 00299 00586 00592 00606 00609 00624
00820* 01214* 01234 02053 02054 02266 02272 02278
03068* 04014 04023 04764* 04777 04786 05417 05786
05791 05792 05836 07193 08046 08436* 08484 08541
08949
RECTUM DISEASES
00572 00606 00625 01464 03067* 03068* 03088 03101
03122 04012 04014 04706 04786 05393* 05417 05824
05833* 08483
RECTUM DISEASES TREATMENT
05808
RECTUM DIVERTICULA
00586 08439*
RECTUM ENDOSCOPY
00203* 00225* 00299 00820* 01234 03647 03699 04007
04014 04031
RECTUM ENZYMES
02254*

RECTUM FISTULAS
02260 02975 03980 03990 04777 08515 05782
RECTUM HISTOLOGY
02053 02272 02595 05393* 07184* 08436* 08526
RECTUM IMMUNOLOGY
00566* 01502
RECTUM IN CHILDREN
00567* 00582 01475 03976* 05787 08440* 08490 08491
RECTUM INJURIES
00620
RECTUM LYMPHOGRAPHY
02278
RECTUM MICROORGANISMS
06263 08949
RECTUM MORPHOLOGY
04340
RECTUM MOTILITY
01214*
RECTUM MUCOSA
00568 00820* 01449* 01452* 01470 02254* 02266 02272
03067* 03099 03116* 03699 03976* 04008 04786 05393*
05731 06436 07122 07184* 08034 08460 08503
RECTUM NEOPLASMS
00609 00622 01488 02258 02551* 03104 04038 05088
05417 05619 05780 07126 07128 08499
RECTUM NEOPLASMS,BENIGN
00613 01463 01465 04022 04791 05393* 07143
RECTUM NEOPLASMS,MALIGNANT
01497* 02266 02272 03061* 04036 04777 04791 04801
04802 04803 05088 05393* 05531 05749 05762 05769
05799 06881 07101* 07127 07143 07169 07174 07180
08194 08436* 08484 08488 08526
RECTUM NEOPLASMS,VILLOUS
00591
RECTUM OBSTRUCTION
05417
RECTUM PATHOLOGY
00578 01452* 02053 02258 02278 03105 03115* 03436
03698 04012 04022 04023 04777 04786 04801 05824
06262 07143 07148 07152 07184* 08436* 08503 08528
RECTUM PERFORATION
01234 04024 05417
RECTUM POLYPS
00250 00578 00592 01448* 01452* 01477 02053 03088
03705 03972* 04706 04759* 05417 05776 05819 07128
08499 08506 08525 08536
RECTUM PROLAPSE
05809 08553
RECTUM RADIOLOGY
00586 01214* 02278 03647 05417 06912 08440*
RECTUM SECRETION
03099
RECTUM SURGERY
00567* 00568 00572 00577 00586 00589 00594 00620
01481 01483 01494* 01497* 02053 02258 02260 02268
02288 02292 02293 03061* 03073* 03079* 03101 03106
03108 03119* 03122 03315* 03436 03969* 03972* 03976*
04000 04024 04038 04706 04764* 04774 04786 04788
04789 04801 04802 04803 04816 05088 05619 05668*
05749 05769 05786 05799 05808 05809 05821 05828
05831 06265 06350 07148 07159 08460 08466 08488
08491 08498 08504 08506 08536
RECTUM TRAUMA
00620 04000 05799 05828
RECTUM TREATMENT
01488 02256* 02260 02591 03436 04764* 04777 07697
RECTUM ULCERS
03097 06973
RECTUM,AGE EFFECTS ON
02293 03106 03976*
RECTUM,DRUG TREATMENT OF
03980
RECTUM,TOXIC EFFECTS ON
05826
RECURRENT ULCER,GASTRECTOMY-INDUCED
00360* 00493 00498 00507 00516 01318* 01339 01391*
01398* 01399* 01766 02216 02111 03007* 03943
RECURRENT ULCERS
08357

REFLUX,ESOPHAGUS
00049* 00085* 00247 00309* 00314* 00315* 00319* 00322
00325 00340 00480* 01069* 01074* 01198* 01272* 01273*
01274* 01275* 01276* 01277* 01279* 01282 01293 01294
01299 02064* 02124 02212 02759* 02761* 02875 02882
03727 03737* 03755 03941 04606 05435 05472* 05491
06325 06367 06794* 06799* 06800* 08064* 08079* 08084
08092 08094 08095 08108 08274 08803
REGENERATION,LIVER
00110* 00125* 00130* 00140* 00144 00145 00159 00170
00201* 00689* 00702* 00757 00775* 01013* 01032 01118*
01123* 01132* 01137* 01142* 01156 01157 01161 01162
01166 01167 01624 01674 01920* 01936 01950 02419*
02490 02601 02730 03556* 03558 03559 03560 03561
03562 03568 03569 03571 03572 03573 03574 03592
04096 04116 04293 04401* 04418* 04421* 04423* 04427*
04433* 04438 04441 04458 04465 05109* 05296* 05301
05312 05327 05330 05343 05344 05346 05357 05953
05975 06023 06051* 06052* 06063 06115 06185 06419
06420 06426 06576* 06608 06618 06631 06639 06646
06647 06651 06665 07253* 07289 07308 07310 07366*
07591 07721* 07742 07746 07880* 07900* 07905 07919
07921 07922 07936 07937 07946 07953 08711
REGENERATION,PANCREAS
00095* 00098* 08575
REGIONAL ENTERITIS
00224* 00449 00519* 00520* 00522 00523 00524 00557
00576 00585 00947 00975 00987 01382 01423* 01424
01425 01464 01493* 01804 02006* 02148* 02174 02228
02232 02810 03035* 03036* 03037 03038 03074* 03080*
03103 03115 03871 03951* 03952* 03953* 03954* 03955
03956 03958 03990 04044* 04047 04208* 04742* 04743*
04744 04745 04746 04747 04782 04809 04828 05089*
05393* 05710* 05711 05712 05713 05714 05715 05716
05717 05825 05836 07055* 07056* 07057 07058 07059
07060 07098* 07184* 08404* 08407 08408 08426 08459
08547*
REGIONAL ENTERITIS DIAGNOSIS
00521 03951* 03952*
REGIONAL ENTERITIS,DISEASES ASSOCIATED WITH
00629* 08247*
REGIONAL ILEITIS
00445 00525 01349* 02229 02230 02231 03955 05650
06994 08405 08406 08551
RESECTION-INDUCED SECONDARY MALABSORPTION,INTESTINAL
00446 00466 00527* 00529* 00916 01354* 01356* 01361
01371 01372 01373 01374 01426* 01431 02154 02980
05612 06941* 08426
RESPIRATORY COMPLICATIONS
00831 00972 01448* 01576 01671 01763 02403 02479
02495 03179 05581 05610 05872 05885 05927 06046
06141 06196 06214 06236 06359 06425 06495 06824
06858 06889 07168 07582

RESPIRATORY SYSTEM
00072* 00694* 01277* 02981 03186 03218* 05875

RETICULOENDOTHELIAL SYSTEM,LIVER
00160 00272 01920* 01963 02391 02475* 02735 03227
03489* 03605 04157 04271* 04300 04417* 06576* 06665
07743 07990* 07770

ROTORS SYNDROME
05127
ROUX GASTROENTEROSTOMY
03402
RUPTURE,COLON
08471
RUPTURE,DIAPHRAGM
00254 . 02895 04257 07539
RUPTURE,DUODENUM
01347
RUPTURE,ESOPHAGUS
02088 05484 05493 06810 06858
RUPTURE,GALLBLADDER
07481
RUPTURE,LIVER
01557
RUPTURE,PANCREAS
02311

SALIVA
00088 00206* 00357* 00832 00897* 01874 03045* 03501*
03502 04348* 04370 06537*
SALIVARY GLAND ANOMALIES
03700
SALIVARY GLAND BIOCHEMISTRY
01824 01874 01999 02745 04075 06463 06526
SALIVARY GLAND BIOPSY
00921 03414
SALIVARY GLAND CARCINOGENESIS
02571
SALIVARY GLAND CHEMICAL COMPOSITION
01824 02745
SALIVARY GLAND DIAGNOSIS
00298 03335 03414 03700 03708 04560 06312 06384
07645 08913
SALIVARY GLAND DISEASES
00298 00904 03335 03350 04222 06384 07634 08913
SALIVARY GLAND ENZYMES
01999 04075
SALIVARY GLAND HISTOLOGY
01824 02746 04297 06463
SALIVARY GLAND HYPERTROPHY
02583
SALIVARY GLAND IMMUNOLOGY
03335
SALIVARY GLAND METABOLISM
02667
SALIVARY GLAND NEOPLASMS
00921 03414 03708 05032* 06230* 06312 07546 07634
07645 08963
SALIVARY GLAND NEOPLASMS,BENIGN
08930
SALIVARY GLAND NEOPLASMS,MALIGNANT
00290 02571 04297 05032* 06230* 06801 08930 08995
SALIVARY GLAND PATHOLOGY
00892* 04297 07546
SALIVARY GLAND RADIOLOGY
00298 00892* 03700 04560 06384
SALIVARY GLAND SECRETION
01078* 01114 01824 01874 02021* 02745 03001* 03502
04560 06524 06526
SALIVARY GLAND SURGERY
03350 03414 06312 06384 08241
SALIVARY GLAND ULTRASTRUCTURE
02571 06463
SALIVARY GLANDS
01302
SALIVARY GLANDS IN CHILDREN
00298 06384
SALIVARY GLANDS,DISEASES ASSOCIATED WITH
05032*
SALIVARY GLANDS,NERVOUS CONTROL OF
01078* 01874
SALIVARY GLANDS,TOXIC EFFECTS ON
00298
SALMONELLOSIS
SEE ALSO PARATYPHOID FEVER
SEE ALSO TYPHOID FEVER
00929 01749 01757 03337 03340 03380 03384 03429
03441 04245 05143 06361 06388 06443 07529* 07600
07668 07669 07691 07737
SALMONELLOSIS CARRIER STATE
02550* 03296 06238* 06260 06348 07522* 07679 07682
08030 08917 09010
SALMONELLOSIS DIAGNOSIS
00920 03648 03697 06741 07711 08541
SALMONELLOSIS EPIDEMIOLOGY
01739 01759 03332 03697 04259 06243 06260 07682
07683 07698 07703 07711 08917 08944 09010
SALMONELLOSIS ETIOLOGY
06391 07698 08917
SALMONELLOSIS IMMUNOLOGY
01759 02619* 03648 05146 08901
SALMONELLOSIS IN CHILDREN
01734* 01778 05034 08512 08944
SALMONELLOSIS PATHOLOGY
03648 06391
SALMONELLOSIS PREVENTION
02619* 03332 06260 06391
SALMONELLOSIS PROPHYLAXIS
01759
SALMONELLOSIS TREATMENT
01759 02550* 05053 06151 07522* 08901 08907 08981
SALMONELLOSIS,BIOCHEMICAL DIAGNOSIS OF
00889*
SALT ABSORPTION,BILE
00028* 00529* 02748
SAMMONELLOSIS,CLINICAL STUDIES OF
06233*
SARCOIDOSIS
00542 00903*
SARCOMA
01000 01380 01382 01609 01729* 01758 01932 02160
02422 02918 03257 03563 03894 03913 04058 05539
05585 05630 05824 06288 06318 06847 06954 06957
08146 08276 08278 08285 08526 08819 08930 01384
05914*

SCAN,LIVER
07229* 08006*
SCANNING,SCINTILLATION
00205* 00222* 00223* 00244 00245 00254 00272 00290
00658 00991 00992 01077 01162 01195* 01230 01236
01257 01374 01536* 01554* 01570 01595 01920* 01962
02009* 02029* 02039 02052 02350* 02354 02366 02383
02799 02809 02819 02821 02835 02854 02968 03610*
03670 03671 03693 03708 03722 03752 04092* 04117
04162 04518 04549* 04553* 04574 04587 04870* 04872*
04921 04926 04966 05165* 05345 05402* 05407* 05437
05454 05859 05863 05910* 05938 05955 05993 06074*
06711* 06717* 06720* 06732 06740 06750 06761 07198*
07241* 07245* 07323 07379 07428* 07435 07783* 07998*
07999* 08002* 08007* 08014 08025 08051 08185 08676
08775 08792
SCHISTOSOMIASIS
00920 03985 04020 04970 05381* 05952 06280 06839
07347 07551 07553 07554 07655 08719 08809
SCHISTOSOMIASIS DIAGNOSIS
00289 00699* 00966 01219* 03699 04089* 04251 04262
04263 04548* 04575 06692 06786 07630 08034
SCHISTOSOMIASIS EPIDEMIOLOGY
00751 00966 01264 06356 06357 07626 07629 07630
08926 08948 09005
SCHISTOSOMIASIS IMMUNOLOGY
00966 01219* 03331 03421 04251 04262 04263
SCHISTOSOMIASIS PATHOLOGY
00578 01351* 03699 04897 04898 04976 05004
SCHISTOSOMIASIS PROPHYLAXIS
06027
SCHISTOSOMIASIS TREATMENT
00930 01802 03321* 03331 03358 03407 04251 04889
05040 05057 06027 06241* 06283 06917 07297 07330
07548 07567 07608 07620 08928 08977 09001 09005
SCHISTOSOMIASIS,BIOCHEMICAL DIAGNOSIS OF
04089*
SCHISTOSOMIASIS,CLINICAL STUDIES OF
04089*
SCHISTOSOMIASIS,EXPERIMENTAL STUDIES OF
03238*
SCINTILLATION SCANNING
00205* 00222* 00223* 00244 00245 00254 00272 00290
00658 00991 00992 01077 01162 01195* 01230 01236
01257 01374 01536* 01554* 01570 01595 01920* 01962
02009* 02029* 02039 02052 02350* 02354 02366 02383
02799 02809 02819 02821 02835 02854 02968 03610*
03670 03671 03693 03708 03722 03752 04092* 04117
04162 04518 04549* 04553* 04574 04587 04870* 04872*
04921 04926 04966 05165* 05345 05402* 05407* 05437
05454 05859 05863 05910* 05938 05955 05993 06074*
06711* 06717* 06720* 06732 06740 06750 06761 07198*
07241* 07245* 07323 07379 07428* 07435 07783* 07998*
07999* 08002* 08007* 08014 08025 08051 08185 08676
08775 08792
SCLERODERMA
00233* 02070 02166 06334
SECRETIN
SEE ALSO PANCREAS
00053* 00062* 00071* 00096* 00099* 00102* 00106 00107
00288 00292 01011* 01065 01109* 01110* 01115 01129*
01187 01411 01528 01885* 01887* 01908* 01911* 01912*

SECRETIN
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01913* 01918 01919 02017* 02059 02655* 02728 02837
02843 03130* 03133* 03134* 03138 03509* 03527* 03529*
03677 04074 04150* 04374 04385* 04387* 04393 04394
04396 04400 04415* 04486* 04522 04880* 05189* 05190*
05224* 05261* 05264 05272 05273 05362* 05519* 05880
05967 06398* 06399* 06508* 06530* 06550* 06551* 06552*
06553* 06557 06560 06764 07195* 07200 07810* 07829*
07837* 07840* 07843* 07845* 07849* 07863* 07864* 07865*
07872 07959* 08061
SECRETION DISORDERS,STOMACH
00081* 00083* 00196* 00221* 00237* 00302 00316* 00319*
00364* 00365* 00393 00395 00402 00404 00472* 00486
00489 00497 00662* 00897* 00911 00953 01090* 01216*
01327 01334 01336 01421 01742 01883* 02015* 02084
02100* 02117 02189* 02201 02343* 02645 03009* 03023
03518* 03943 04341 04367 04656 05093* 05094* 05256
05257 05568 06543 06708* 06733 08226
SECRETION IN DISEASE,STOMACH
00364* 00785 01410 02682* 02817 02913* 04366* 04715*
05226*

SECRETION STUDY TECHNIQUES
00105 00206* 00288 00395 01096* 01109* 01110* 01844*
01915 02669* 02761* 02837 03672 03683 05413 05430
08020
SECRETION STUDY TECHNIQUES,BILE
04310*
SECRETION STUDY TECHNIQUES,STOMACH
00067* 00069* 00070* 00071* 00078* 00080* 00085* 00086*
00090 00092 00093 00196* 00221* 00237* 00255 00261
00287 00503 01046* 01082* 01084* 01094* 01099 01104
01107 01108 01202* 01249 01254 01388* 01388* 01889*
01899 01901 01905 02031* 02051 02679* 02681* 02686
02780 02817 02818 02913* 03516* 03632 04326 04364*
04371 04372 04381 05116* 05161* 05245 05246 05249
05416 05432 05595* 06532* 06538 06708* 06766 07801
07836* 07838* 07861 07996* 08141* 08143* 08338* 06530*
SECRETION,BILE
00115* 00119* 00133* 00687* 00762 00770* 01006* 01014*
01113* 01117* 01126* 01129* 01143* 01147* 01266 01575
01577 01938 01984 02251 02348* 02413 02420* 02506*
02522 02665 02703* 03001* 03245 03557 03671 03993
04114 04459 04464 04479 04498* 04997 06006 06228*
06473* 06571* 06663 07450 07784* 07884* 07894* 07902*

SECRETION,DRUG EFFECTS ON BILE
01129*
SECRETION,DRUG EFFECTS ON STOMACH
00255 01088* 01091* 01092* 01093* 01094* 01306* 01401
01405 01883* 01888* 01892* 01903 02051 02117 02542*
02604 02605 02669* 03518* 03519 03520 03832 03934
03935 03936 03939 04324* 04341 04366* 04369 04379
04382 04383 04550* 05161* 05199 05229* 05237* 05238*
05239 05244 05252 05662* 06468* 06509* 06529* 06530*
06536* 06537* 06545 06708* 07047 07829* 07835* 07839*
07840* 07843* 07846* 07847* 07850* 07852* 07959* 08135*
08396 06533*
SECRETION,DUODENUM
00107 01033 01863* 03130* 03465* 04375 05292* 06544
06551* 07200 07864* 07969
SECRETION,ELECTROLYTE
00640* 05719* 08951
SECRETION,GALLBLADDER
00024* 00850* 01113* 06505*
SECRETION,GASTRIC
02680* 05245 06259
SECRETION,GASTROINTESTINAL
00977 01079 01187 01222 02666 02755 03522 04525
05159* 05430 06523 07736* 08020
SECRETION,HORMONAL CONTROL OF
06550* 06551*
SECRETION,HORMONAL CONTROL OF STOMACH
00067* 00071* 00073* 00078* 00079* 00080* 00082* 00085*
00086* 00089 00104* 00192 00496 01081* 01086* 01087*
01088* 01090* 01097* 01098 01101 01102 01103 01104
01108 01202* 01316* 01405 01406 01528 01752 01775
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01891* 01894* 01895* 01897* 01901 01904 02031* 02033*
02055 02542* 02669* 02672* 02676* 02678* 02679* 02683*
02684* 02690 02818 03002* 03019 03439 03504* 03506*
03508* 03511* 03513* 03518* 03940 03942 03943 04229
04357* 04368 04374 04375 04376 04378 05190* 05243
05252 05582 06546 07845* 07854* 07869* 08061 08226
01896* 07853*

SECRETION,KIDNEY ELECTROLYTE
00832 01613 01669 06987

SECRETION,LARGE INTESTINE
00029* 00030* 02657 04527 04529 05159* 06237* 07665
07800
SECRETION,LIVER
00115* 00694* 00736 02420* 02428 02834 04103 04459
04469 05338 07804
SECRETION,NERVOUS CONTROL OF
03385
SECRETION,NERVOUS CONTROL OF STOMACH
00074* 00077* 00080* 00082* 00083* 00492 00496 00500
01083* 01097* 01100 01103 01104 01294 01406 01410
01861* 01879* 01881* 01902 02669* 02817 02926 03003*
03019 03616* 04357* 04364* 04513 05232* 05245 05252
05582 05690 06076* 06533* 06913
SECRETION,PANCREAS
00020 00097* 00101* 00105 00107 00288 00292 00639*
00662* 00666* 00672 01109* 01110* 01113* 01114 01115
01116 01143* 01220 01229 01469 01507* 01528 01907*
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02329 02472* 02544* 02693 02837 03019 03129* 03134*
03135 03137 03143* 03236* 03274 03526* 03527* 03529*
03599* 03677 03942 04074 04150* 04277* 04387* 04394
04396 04400 04522 04830* 04831* 04834 04839 04842
04843 04880* 04916 05000 05258* 05260* 05261* 05263*
05269 05270 05362* 05413 05431 05729 05852 05877
05878 05879 05880 05884* 05901 06035 06163 06385
06552* 06553* 06555* 06556 06557 06559 06560 06596*
06739 06764 07195* 07200 07208 07216 07609 07829*
07849* 07863* 07864* 07865* 07873 07876 07959* 08008*
08583 08598* 08793
SECRETION,PANCREAS AMYLASE
00062* 00094* 00099* 00100* 00102* 00106 00206* 00645*
01111* 01113* 01143* 01910* 01914 02005* 02059 02303*
02330 03131* 03135 03266* 03527* 03529* 03674 04075
04150* 04385* 04389* 04391 04393 04394 04842 04944*
05208* 05263* 05519* 05873 05877 05879 05886 06550*
06552* 06558 07219 07536* 07867* 08590 08597* 08604
SECRETION,PANCREAS BICARBONATE
00096* 00099* 00101* 00104* 00106 01087* 01109* 01411
01908* 01912* 01913* 01918 02310 02472* 03131* 04150*
04387* 05272 05519* 06530* 06550* 06551* 07195* 07829*
SECRETION,PANCREAS CALCIUM
04835
SECRETION,PANCREAS CHLORIDE
00096* 00101* 01912*
SECRETION,PANCREAS CHYMOTRYPSIN
01111* 02058 04386* 04391 04393 04394 04397 06553*
SECRETION,PANCREAS ELECTROLYTE
00099* 01907* 05273
SECRETION,PANCREAS ENZYME
00645* 01581 01908* 02472* 05266 06074* 08363 08607
05272 05273

SECRETION,PANCREAS LIPASE
00062* 00094* 00100* 00102* 00274 01102 01241 01991
02057 02058 02059 02060 02305 02310 03527* 03529*
04328 04391 04392 04393 04394 04399 04842 04851*
04944* 05208* 05260* 05263* 05877 05879 05883* 06074*
06552* 06553*
SECRETION,PANCREAS PHOSPHOLIPASE
05884* 01516* 08598*

SECRETION,PANCREAS PROTEASE
00094* 00100* 01438 01508 02320* 04386*
SECRETION,PANCREAS PROTEIN
00102* 00104* 01087* 01113* 01143* 04387* 05271 06398*
06530*
SECRETION,PANCREAS TRYPSIN
02303* 02310 02692* 03138 03527* 03529* 04391 04397
04842 04944* 05260* 05263* 05877 05879 05896
SECRETION,PANCREAS TRYPSIN INHIBITOR
01906*
SECRETION,PEPTIC ULCER
01882* 04354*
SECRETION,RECTUM
03099
SECRETION,SALIVARY GLAND
01078* 01114 01824 01874 02021* 02745 03001* 03502
04560 06524 06526
SECRETION,SMALL INTESTINE
00027* 00053* 00066 00079* 00080* 00431* 00663* 01097*
01863* 01988* 02035* 02657 02662* 02666 03019 03368
03377 03508* 03594* 03597* 03672 04328 04488* 04492
04513 04522 04689 05159* 05161* 05189* 05207 05361*
05657 05719* 05857 06237* 06503* 07106* 07665 07796
07829* 07959*
SECRETION,STOMACH
00022 00051* 00066 00087 00088 00089 00107 00348
00353* 00374 00397 00411 00424 00506 01033 01085*
01095* 01201* 01267 01304* 01315* 01403 01760 01876*
01886* 01887* 01888* 01895* 01898* 02021* 02109 02139
02217 02225 02553* 02576 02629* 02633 02671* 02675*
02680* 02681* 02685 02686 02687 02689 02741* 02780
02917 03014* 03019 03020 03464* 03504* 03505* 03507*
03510* 03511* 03512* 03514* 03523 03525 03816 03928*

SECRETION,STOMACH
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03993 04060 04305 04324* 04326 04328 04344 04352*
04353* 04355* 04356* 04357* 04363* 04367 04376 04377
04378 04382 04384 04394 04492 04513 04550* 04556*
04644 04715* 04718 04732 04737 05116* 05136 05160*
05161* 05189* 05200 05225* 05230* 05232* 05235* 05236*
05238* 05240 05249 05253 05254 05255 05406* 05465
05529 05540 05591 05662* 06177 06222 06237* 06244
06327 06467* 06468* 06498 06509* 06529* 06530* 06532*
06536* 06541 06545 06695 06719* 06735 06897 06919
07001* 07018 07526* 07765 07774 07829* 07836* 07838*
07840* 07841* 07847* 07853* 07856* 07857* 07858 08008*
08060 08190 08197 08327* 08332* 08376 08915 05228*
SECRETION,STOMACH ACID
00005* 00007* 00013* 00051* 00068* 00071* 00072* 00073*
00074* 00075* 00076* 00077* 00078* 00079* 00080* 00081*
00082* 00083* 00084* 00085* 00086* 00090 00091 00093
00099* 00104* 00196* 00221* 00237* 00255 00302 00316*
00394 00395 00409 00411 00438* 00472* 00484 00496
00500 00503 00662* 00902* 01045* 01080* 01081* 01082*
01083* 01084* 01086* 01087* 01088* 01090* 01091* 01092*
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01405 01406 01412 01419 01528 01726* 01752 01766
01774 01861* 01869* 01875* 01876* 01877* 01878* 01879*
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01889* 01890* 01891* 01892* 01893* 01894* 01896* 01897*
01899 01903 01904 01905 02031* 02033* 02055 02106*
02113 02117 02118 02189* 02214 02223 02604 02605
02670* 02671* 02673* 02674* 02676* 02678* 02679* 02683*
02684* 02686 02688 02761* 02780 02817 02818 02912*
02964* 02998* 02999* 03000* 03001* 03003* 03012* 03015*
03019 03022 03023 03323* 03462* 03508* 03510* 03513*
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04360* 04362* 04364* 04366* 04369 04371 04373 04375
04380 04381 04484* 04556* 04581 04634 04646 04656
04707* 04715* 04721 04724 05019 05155* 05169 05184
05223* 05226* 05227* 05232* 05233* 05234* 05237* 05238*
05241 05246 05247 05248 05250 05251 05252 05386
05406* 05416 05513* 05582 05590 05692 05877 06076*
06408* 06503* 06530* 06531* 06534* 06537* 06538 06539
06543 06544 06549 06555* 06560 06708* 06709* 06733
06766 06799* 06865* 06913 06925 07022 07044 07053
07408 07609 07625 07834* 07835* 07839* 07842* 07843*
07844* 07845* 07846* 07849* 07851* 07852* 07853* 07854*
07855* 07856* 07860 07869* 08020 08141* 08143* 08226
08243 08326* 08338* 08360 08396 08584 08905
SECRETION,STOMACH ELECTROLYTE
00067* 00068* 00069* 00070* 00082* 00091 00658 01085*
01088* 01096* 01099 01868* 01883* 01896* 02669* 02672*
02686 05398* 07847* 07854* 08951
SECRETION,STOMACH LIPASE
01046*
SECRETION,STOMACH MUCUS
00070* 00366* 01086* 02031* 03501* 03515* 03516* 03517*
03524 04382 05416 06320 06548 07851*
SECRETION,STOMACH PEPSIN
00008* 00067* 00071* 00074* 00082* 00087 00092 00104*
00473* 00496 01080* 01086* 01088* 01327 01876* 01881*
01883* 01885* 01888* 01892* 01897* 02214 02669* 02672*
02674* 02676* 02899* 03000* 03505* 03516* 03632 04354*
04360* 04368 04372 04484* 04724 05233* 05234* 05582
06076* 06530* 06545 07835* 07840* 07848* 08226 08325*
SECRETION,STOMACH TRACE ELEMENT
01096*

SECRETOR STATUS,BLOOD GROUP
01304* 01882* 01993 03045* 04348* 04362* 04719 07040
SEROLOGICAL DIAGNOSIS
00211* 00805 00966 01230 01430* 01433 01455 01487
01510 01628* 01734* 01755 01764 02050 02052 02354
02437 02556 02598 02788 02829 02830 02840 02842
03252 03253 03331 03333 03588 03648 03650 03711
04047 04048 04140 04144 04843 04977 05183 05414
05504 05590 05980 05992 06040 06090 06119 06161
06179 06444 06727 06748 06770 06783 06877 06880
06924 07220 07275 07365 07407 07623 07670 07678
07679 07686 07687 07689 07738 07747 07904 08018
08030 08039 08100 08160 08212 08540 08616 08649
08656 08686 08691 08698 08770 08772 08776 08814
09011 09012
SEROTONIN
SEE ALSO CARCINOID SYNDROME
00052* 00057 00066 00080* 00356* 00622 01115 01306*
01401 01682 01735* 01736* 01814* 01986* 02908* 03212
03465* 03844 04284 05335 05545 06315 06412* 06503*
06691* 07796 07876 07951 08160 08212 08328*
SERUM AMYLASE
05422 05431
SERUM BILE PIGMENTS
01558
SERUM BILE PIGMENTS IN JAUNDICE
00163 00680* 00762 00787 01168 01203* 02361 03177
03184 04425* 05913* 05974 06589* 07333
SERUM CHOLESTEROL
00122* 00189 01737 08929
SERUM ELECTROLYTES
00433* 00603 00658 00832 01547* 04509* 04882 05372
06355 07535* 07614 08622*
SERUM ENZYMES
01222 01764 02022* 05785 07523* 08363
SERUM ENZYMES,LIVER
SEE ALSO ALKALINE PHOSPHATASE
SEE ALSO LIVER DISEASE DIAGNOSIS
00110* 00137* 00140* 00201* 00202* 00211* 00222* 00232*
00234* 00239* 00259 00265 00267 00281 00494 00684*
00685* 00697* 00701* 00705* 00722 00774* 00777* 00778*
00787 00803 01195* 01206* 01209* 01218* 01221 01225
01247 01536* 01539* 01550* 01552* 01558 01567 01606*
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02008* 02012* 02018* 02030* 02042 02056 02191* 02341*
02350* 02388 02389 02418* 02439 02441 02454* 02461
02500* 02556 02808 02813 02814 02829 02838 02842
02851 03131* 03186 03214 03215 03218* 03222 03233*
03237* 03246 03411 03619* 03633 03649 03650 03668
03690 03714 04137* 04159 04440 04545* 04861* 04949
05017 05259* 05266 05392* 05404* 05414 05424 05916*
05937 06030 06054* 06075* 06111 06595* 06652 06707*
06759 07252* 07256* 07368* 07390* 07391* 07403 07900*
07992* 08008* 08622* 08627* 08638* 08641* 08804
SERUM HEPATITIS
00250 00795* 00797 00806 00811 00816 01629* 01645
02455* 02814 03256 03451* 04097 04134* 04143 04273*
04303 06078* 06082 07263 07274 07277 07398 07407
07414 08733* 08751* 08753*
SERUM HEPATITIS IN CHILDREN
00775*
SERUM IRON
00044 00494 02405 04861* 06495
SERUM PROTEINS
07238*
SERUM PROTEINS,LIVER
04158 08774
SEX FACTORS
00130* 00180* 00490 00642* 00825* 02220 02297* 02357
02376 02399 02454* 02462 02488 02529 02745 02934
02938 02939 02948 02951 02973 02990 03016* 03024
03027 03033 03251 03271 03370 03408 03625 03766
03788 03800* 03819 04043* 04102 04108 04635 04660
04720 04735 04871* 04989 04990 05287* 05561 05742*
05823 06305 06307 06536* 06739 07123 07125 07259
07363 07373 07642 07750 07958* 08336* 08449 08801
SHIGELLOSIS
SEE ALSO DYSENTERY
00889* 01793 01794 03332 04295 05021* 05038 05834
06388 06443 06444 06454 06455 07675 07676 07678
07680 07688 07701 07737
SHIGELLOSIS DIAGNOSIS
01757 04564 06776 06777 08903 09002
SHIGELLOSIS EPIDEMIOLOGY
00999 01757 07672 07673 07704 08903 09009 09010
SHIGELLOSIS IMMUNOLOGY
01783 01784 01785 01795 01796 01797 07612
SHIGELLOSIS IN CHILDREN
01734* 02548* 08903
SHIGELLOSIS TREATMENT
00965 01773 01783 01784 01785 01797 02548* 04226
SHOCK
00235* 00342 00362* 00479* 00663* 00770* 00831 00986
01246 01383 01414 01523 01549* 01580 01729* 01733*
01776 01812 02051 02370 02390 02445 02572 02593
03016* 03390 03603* 03605 03869* 04519 04938 05274*
05379* 05816 06575* 06617 06683* 06689* 06690* 06999*
07165 07593 07636 08599* 08891* 08959 08972
SHUNT IN PORTAL HYPERTENSION TREATMENT,PORTACAVAL
03286*
SHUNT,ARTERIOPORTAL
06684*
SHUNT,PORTACAVAL
00099* 00312* 00687* 00708* 00711 00818* 00822* 00823*
00827* 00899* 01191 01291 01541* 01546* 01587 01588
01589 01590 01591 01647* 01652* 01658 01670 01760
02001* 02066* 02350* 02362 02371 02373 02384 02385
02412 02471* 02478 02553* 02885 03133* 03202 03258*
03268 03508* 03514* 03733* 03738* 04378 04388* 04504*
04970 04972 05029* 05152 05240 05368 05385 05487
05489 05908* 05970 06018 06096* 06101* 06102* 06106
06124 06534* 06706 06844 07029 07330 07335 07341
07349 07423* 07437 07454 07457 07893* 07928 08069*
08326* 08618* 08667 08781* 08783* 08784* 08786* 08787*
08791 08803 06689*
SHUNT,SPLENORENAL
04161

SIGMOID
SEE ALSO LARGE INTESTINE
00561* 00580 00584 00588 00589 00593 00601 00607
01465 01467 02250* 02291 03094 03100 03883 03989
03998 04039 04306 04785 05740* 05777 05782 05788
05802 07120 07164 08439* 08457
SIGMOIDITIS
01486 03985
SIGMOIDOSCOPY
00225* 00557 00977 00980 01265 01761 01770 02054
02257 02259 02273 03100 03636 03990 04007 04010
05813 07177 08432* 05417

SIMPLE NONSPECIFIC ULCERS
SEE NONSPECIFIC ULCERS
SJOGRENS SYNDROME
03055 03335

SMALL INTESTINAL MOTILITY
06503*
SMALL INTESTINE
SEE ALSO ABSORPTION
SEE ALSO DUODENUM
SEE ALSO ENTERITIS
SEE ALSO ILEOCECAL VALVE
SEE ALSO ILEUM
SEE ALSO ILEUS
SEE ALSO INTUSSUSCEPTION
SEE ALSO JEJUNUM
SEE ALSO MALABSORPTION
SEE ALSO PEPTIC ULCERS
00437* 01024* 02653* 04314* 04487* 04509* 05372 05596*
05693 06681* 07098* 07593
SMALL INTESTINE ABSORPTION
00017 00023* 00025* 00026* 00027* 00031* 00033* 00034*
00036 00039 00042 00043 00061* 00194 00195 00220*
00275 00431* 00436* 00520* 00530* 00532 00538 00542
00546 00548 00550 00554 01036* 01038* 01039* 01040*
01041* 01043* 01044* 01047* 01048* 01049* 01050* 01053
01055 01056 01057 01058 01059 01060 01062 01063
01064 01176* 01183* 01351* 01353* 01357* 01370 01373
01374 01375 01426* 01434 01437 01438 01439 01760
01793 01829 01830 01835 01840* 01841* 01843* 01844*
01846* 01847* 01848* 01849* 01850* 01851 01852 01853
01854 01865* 02027* 02149* 02236* 02238* 02242 02640*
02642* 02647 02651 02689 02736* 02815 02823 02825
03039* 03040* 03041* 03044* 03048 03057 03423 03429
03460* 03479* 03480* 03481* 03482* 03485* 03486* 03487*
03488* 03492 03493 03494 03495 03498* 03523 03596*
03598 03601* 03705 03899 03960* 03962* 03965 03967
03968 04309* 04313* 04314* 04315* 04317* 04324* 04327
04328 04329 04331 04332 04334 04483* 04485* 04490*
04507* 04517 04566 04674* 04678 04755 05052 05090*
05154* 05156* 05158* 05160* 05162* 05163* 05169 05170
05172 05175 05178 05179 05183 05235* 05371 05374
05395* 05597* 05602* 05603* 05605* 05634 05657 05721*
05733 05736 05967 06259 06452 06453 06464* 06469*
06466* 06471* 06472* 06475* 06476* 06477* 06478* 06480*
06481* 06488 06489 06494 06670* 06674 06675 06679
06686* 06740 06864* 06979 07061* 07064* 07345 07719*
07728* 07735* 07753 07777* 07781* 07782* 07786* 07787
07792 07793 07795 07798 07803 07805 07806 07808
07828* 07833 07967 08283 08308 08424 08951
SMALL INTESTINE ANGIOGRAPHY
06964 06982 07531*
SMALL INTESTINE ANOMALIES
00437* 00445 00459 00550 00554 00555 00556 00646
00650 01322 01358 01362 01363 01385 01512 01831
02142 02145* 02166 02168 02572 02971 02990 03344
03346 03484 03705 03875 03881 03883 03890 03895
03899 04680 04684 04685 05615 05764 06268 06949
06988 07154 08250* 08282 08299 08306 08310 08938
09030 02155

SMALL INTESTINE ATRESIA
08273 03912
SMALL INTESTINE BIOCHEMISTRY
00002* 00004* 00012* 00023* 00026* 00036 00064* 00065*
00194 00234* 00286 00447 00528* 01005* 01008* 01016*
01020* 01023* 01040* 01043* 01044* 01050* 01056 01062
01176* 01179* 01180* 01182* 01183* 01442 01711 01712
01814* 01822* 01830 01831 01845* 01846* 01850* 01987*
01989* 02147* 02623* 02642* 02657 02662* 02737* 03053
03236* 03482* 03485* 03488* 03492 03598 03672 03705
04249 04328 04485* 04493 04689 05097* 05170 05210
05360* 05365* 05366* 05367* 05384 05722* 05848* 05857
06427 06472* 06477* 06669* 06675 06676 06678 06778

SMALL INTESTINE BIOCHEMISTRY
CONTINUED
06978 07068* 07076 07738 07753 07760 07772 07958*
07961* 07963* 07968 07969 07970
SMALL INTESTINE BIOPSY
00278 00284 00438* 00441* 00448 00458 00527* 00528*
00551 00555 00558 00560 01183* 01197* 01442 01758
01762 01841* 02144* 02148* 02151* 02166 02240* 02249
02627* 02961* 02985 02994 03053 03054 03058 03200
03425 03453* 03627 03705 03719 03814 04307 04314*
04591 04754 05420 05446 05600* 05602* 05633 05731
06077* 06326 06672 06716* 07061* 07066* 07069 07087
07096 08415 08421 08425 08752*
SMALL INTESTINE CANCER
00445 00455 00511 00636 01364 01380 01725* 01780
02145* 02158 02184 02229 02249 02289 02583 02774
02968 02972 02991 03038 03121 03403 03413 03854
03877 03885 03886 03908 03913 04195* 05397* 05616
05630 05639 05650 05652 05658 06957 08257* 08270
08276 08277 08278 08302
SMALL INTESTINE CARCINOGENESIS
07767
SMALL INTESTINE CHEMICAL COMPOSITION
02623* 03454*
SMALL INTESTINE CIRCULATION
00017 00179* 00181* 00458 00931 00949 01012* 01025*
01350* 01357* 01377 01385 01827 01835 01867* 02143*
02621* 02742* 02743* 03353 03391 03420 03460* 03902
04500* 04506* 04507* 04521 04531 04540 04859 05654
05738* 06450 06456 06686* 06688* 06704 06943* 06980
06982 06985 06992 07039 07974 07987 08264 08280
08286 08906
SMALL INTESTINE CYSTS
00458 06981
SMALL INTESTINE DEVELOPMENT
00014* 00065* 01008* 01016* 01022* 01023* 01028 01178*
06427 06667* 06671 07963* 07965* 08316

SMALL INTESTINE DIAGNOSIS
00256 00258 00269 00276 00278 00284 00452 00454
00461 00518 00521 00527* 00550 00953 01197* 01198*
01199* 01210* 01240 01251 01258 01350* 01359 01362
01364 01366 01378 01429* 01814* 02144* 02149* 02158
02162 02163 02172 02176 02240* 02245 02627* 02774
02820 02974 02976 02979 02984 02985 02994 03041*
03046 03051 03054 03115 03200 03325* 03327* 03377
03484 03625 03627 03629 03638 03653 03672 03680
03684 03696 03719 03814 03864* 03871 03873 03874
03879 03880 03891 03898 03912 03999 04064 04216
04260 04342 04522 04558* 04581 04682 04687 04692
04754 05047 05048 05083 05398* 05609 05611 05612
05614 05616 05621 05626 05631 05635 05638 05639
05640 05642 05652 05654 05655 05711 05715 05716
05724 05728 06515 06716* 06778 06944* 06948 06972
06974 06976 06982 06983 06995 07093 07142 07506
07569 08053 08246* 08248* 08253* 08261 08404* 09019
SMALL INTESTINE DISACCHARIDASES
00286 00528* 00536 00538 01040* 01182* 01183* 01436
01745 01831 02238* 02243 02244 03453* 04566 04749*
04753 05360* 05735 06668* 06671 07063* 07067* 07964*
08409*

SMALL INTESTINE DISEASE EPIDEMIOLOGY
00429*
SMALL INTESTINE DISEASES
00002* 00453 00464 01369 01382 01769 01804 02161
02167 02171 02173 02184 02233 02294 02666 03331
03341 03356 03357 03389 03403 03443* 03625 03814
03866* 03871 03875 03880 03885 03899 03903 03961*
04191* 04200* 04206* 04461 04506* 04742* 05049 05056
05059 05060 05074 05082 05598* 05640 05649 05657
05717 05728 06776 06948 06970 07056* 07142 07647
07664 07670 07671 07672 07673 07674 07676 07677
07684 08055 08253* 08286 08299 08422 08699 08969
08982 09004 05599* 08249*
SMALL INTESTINE DIVERTICULA
00430* 00453 00499 00529* 01360 01369 01382 02157
02172 02173 02970 02971 02974 02978 02991 03059
03322* 03874 03877 03882 04677 04684 04690 04699
06961 06974 06995 07153 08252* 08260 08281 08283
00429*
SMALL INTESTINE DIVERTICULITIS
02157 04690 05732

SMALL INTESTINE ENDOSCOPY
02026* 02789 05048 06737 06883
SMALL INTESTINE ENZYMES
00002* 00004* 00012* 00062* 00065* 00234* 00528* 01005*
01008* 01016* 01022* 01023* 01033 01044* 01180* 01182*
01183* 01438 01822* 01830 01831 01843* 01987* 01989*
02147* 02235* 02237* 02662* 02825 03049* 03053 03236*
03445* 03492 03672 03705 04328 04487* 04489* 04492
04493 04536 04566 04678 04689 05082 05097* 05098*
05208* 05360* 05362* 05364* 05365* 05367* 05398* 05720*

SMALL INTESTINE ENZYMES
CONTINUED
06667* 06668* 06669* 06672 06673 06678 06962 07080
07106* 07660 07960* 07961* 07962* 07963* 07964* 07965*
07969 08164 08412*

SMALL INTESTINE FISTULAS
00463 01041* 01375 01751 02159 02173 02511 02983
03036* 03059 03123 03436 04697 04744 05555 05636
05710* 06987 07034 08247* 08895* 08965 05645 06251
08516
SMALL INTESTINE HISTOLOGY
00194 00431* 00433* 00440* 00441* 00451 00458 00464
00528* 00531 00533 00938 01005* 01028 01177* 01178*
01197* 01351* 01353* 01442 01729* 01762 01807 01814*
01994 02143* 02144* 02147* 02149* 02150* 02151* 02160
02165 02233 02235* 02240* 02251 02554* 02623* 02627*
02740* 02993 03053 03443* 03445* 03453* 03705 03719
03879 03900 03902 03955 03968 04224 04289 04296
04307 04591 04690 05090* 05098* 05139 05241 05446
05600* 05601* 05614 05621 05652 05716 05721* 06130*
06237* 06397* 06399* 06427 06437 06442 06443 06450
06778 06944* 06962 07067* 07096 07719* 07728* 07735*
07744 07751 07767 07772 08255* 08264 08265 08425
08752*
SMALL INTESTINE IMMUNOLOGY
00464 01353* 01370 01430* 01988* 02237* 02810 03476
03903 05718* 06446 06944* 07060 07066* 07675 07686
08547* 08953 08955
SMALL INTESTINE IN CHILDREN
00220* 00437* 00457 00465 00558 01183* 01358 01359
01363 01365 01376 01865* 02142 02145* 02155 02627*
02763* 02961* 02963* 02979 03319* 03344 03492 03629
03719 03825 03871 03878 03880 03881 03887 03895
03912 04678 04680 04687 04689 05065 05085 05420
05613 05633 05646 05703 06036 06268 06364 06716*
06973 06974 07064* 07658 07969 08256* 08266 08298
08306 08573 09020
SMALL INTESTINE INJURIES
01352* 01355* 01383 02159 02169 02928 04675* 04724
05606 05620 05659 06316 08304
SMALL INTESTINE LIPID METABOLISM
01020*
SMALL INTESTINE METABOLISM
00042 00061* 01022* 01023* 01177* 02554* 03389 03492
03965 04349* 04485* 04528 04678 04755 05168 05170
05364* 05374 05720* 05722* 06123 06679 07068* 07781*
07960*

SMALL INTESTINE MICROORGANISMS
00028* 00432* 00529* 00530* 00897* 01729* 01776 02739*
03047 03059 03349 03390 03429 03607 03711 03903
04223 04224 04226 04259 04295 04307 04514 04686
04700 05067 05079 05098* 05649 05728 06300 06443
06444 06445 06446 06448 06679 06680 06752 06753
06776 06777 06943* 06973 07092 07568 07594 07612
07664 07667 07669 07670 07671 07672 07673 07674
07675 07676 07677 07678 07679 07680 07681 07682
07683 07684 07686 07687 07688 07689 07690 07691
07738 07740 07982 08039 08252* 08992 09002 09003
09009 09018 09021 09023 06243
SMALL INTESTINE MORPHOLOGY
00017 00194 00440* 00445 00458 00554 00556 01024*
01063 01328 01827 01829 01830 01835 02150* 02151*
02627* 02740* 03425 03426 03443* 03705 03893 03899
03961* 04266* 04296 04490* 05098* 05139 05446 05612
05638 06130* 06442 06456 06489 06985 07076 07719*
07726* 07728* 07744 07750 07761 07824 08280 08303
08752*
SMALL INTESTINE MOTILITY
00045* 00047* 00050* 00056* 00058 00060 00061* 00179*
00181* 00194 00276 00361* 00439* 00466 00518 01068*
01190 01210* 01354* 01381 01858* 01859* 01860* 01863*
01864* 01865* 01866* 01867* 02020* 02143* 02166 02540*
02541* 02649 02653* 02654* 02657 02658 02762* 02789
02973 03020 03381 03429 03496* 03498* 03638 03844
03999 04342 04343 04346 04507* 04513 04558* 04565
05051 05074 05153 05187* 05189* 05192* 05193* 05207
05638 05883* 06130* 06245 06300 06388 06493 06514
06520 06941* 06975 07602 07625 07808 07813* 07814*
07816 07817 07821 08199 08251* 08321
SMALL INTESTINE MUCOSA
00002* 00012* 00014* 00017 00027* 00036 00043 00064*
00185* 00194 00284 00286 00375 00431* 00441* 00442
00447 00449 00451 00458 00464 00526* 00527* 00531
00532 00533 00539 00541 00546 00554 00557 00558
00938 01005* 01007* 01012* 01020* 01022* 01023* 01024*
01028 01039* 01043* 01058 01060 01062 01063 01079
01177* 01179* 01180* 01182* 01183* 01328 01350* 01353*
01362 01370 01375 01428* 01429* 01438 01440 01442
01468 01738 01822* 01827 01829 01830 01831 01843*
01845* 01846* 01847* 01848* 01850* 01854 01856 01913*
01986* 01987* 01988* 01989* 02035* 02143* 02144* 02147*
02148* 02149* 02150* 02151* 02165 02180 02237* 02240*
02244 02554* 02623* 02651 02736* 02740* 02743* 02774

SMALL INTESTINE MUCOSA
CONTINUED
02775 02988 02990 02993 03050 03053 03054 03058
03392 03423 03425 03429 03432 03443* 03454* 03479*
03480* 03482* 03485* 03498* 03597* 03598 03601* 03627
03629 03680 03696 03878 03891 03900 03902 03908
03955 03960* 03967 03968 04191* 04212 04266* 04284
04296 04307 04313* 04331 04335 04483* 04485* 04490*
04493 04528 04581 04675* 04724 05051 05052 05090*
05097* 05098* 05142 05160* 05178 05189* 05208* 05360*
05362* 05367* 05369 05420 05446 05600* 05603* 05612
05652 05655 05719* 05720* 05721* 05733 06077* 06226*
06237* 06397* 06399* 06402* 06403* 06413* 06423 06452
06453 06489 06666* 06668* 06669* 06671 06672 06676
06679 06778 06890 06944* 06966 06972 06985 07058
07061* 07068* 07069 07078 07084 07625 07631 07665
07719* 07726* 07728* 07729* 07735* 07744 07760 07763
07772 07774 07780* 07787 07792 07885* 07960* 07961*
07962* 07964* 07965* 07970 08164 08303 08308 08406
08412* 08421 08425 08547*
SMALL INTESTINE MUCOSAL INJURIES
02235*
SMALL INTESTINE NEOPLASMS
00269 00456 01258 01369 01382 01429* 02176 02551*
03638 03898 03905 04681 04688 05651 05653 06955
06990 07094 07714 08249* 08263 08297 08311 08314
08573 08993
SMALL INTESTINE NEOPLASMS,BENIGN
00376 00444 00452 00459 01199* 01484 02158 02160
02162 02176 02957* 02965 02976 03885 03908 04679
04694 05626 05652 05655 06958 06964 06976 06983
06986
SMALL INTESTINE NEOPLASMS,MALIGNANT
00450 00462 00467 00526* 00979 01000 01199* 01360
01364 01380 01384 01758 02160 02162 02176 02229
02245 02774 02957* 02968 02972 02982 03038 03121
03413 03864* 03885 03886 03894 03908 03913 04289
04691 04703 05023* 05596* 05602* 05621 05626 05630
05639 05652 05658 05681 06344 06957 06984 06986
07534* 08259 08269 08270 08285 08300 08305 08323
05610
SMALL INTESTINE OBSTRUCTION
00410 00429* 00435* 00437* 00439* 00443 00454 00457
00461 00524 00617 00856 00880 00895* 00950 00975
00998 01001 01240 01258 01309* 01322 01347 01350*
01355* 01358 01362 01363 01366 01367 01368 01378
01425 01468 01511 01532 01707 01751 01763 01769
02145* 02158 02163 02164 02166 02170 02172 02177
02182 02283 02516 02572 02575 02597 02602 02615
02774 02957* 02959* 02963* 02965 02967 02969 02974
02978 02979 02984 02989 02990 02994 02995 02996
03047 03140 03141 03388 03413 03434 03484 03638
03825 03863* 03868* 03877 03880 03881 03886 03887
03888 03895 03898 03901 03910 03912 03914 04061
04216 04499* 04500* 04509* 04676* 04677 04679 04682
04685 04687 04690 04692 04743* 05047 05080 05193*
05601* 05606 05615 05617 05623 05624 05629 05631
05642 05644 05646 05651 05652 05827 06022 06139*
06248 06321 06340 06364 06368 06386 06943* 06946*
06948 06953 06965 06968 06971 06974 06989 07059
07105* 07118 07153 07154 07506 07665 08245* 08246*
08248* 08250* 08256* 08257* 08266 08271 08273 08275
08278 08281 08283 08285 08287 08288 08292 08294
08309 08315 08319 08321 08480 08838 08895* 08898
08986 08992
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00430* 00440* 00441* 00448 00449 00455 00458 00518
00521 00527* 00533 00541 00542 00543 00556 00968
01351* 01423* 01428* 01429* 01454* 01776 02144* 02148*
02149* 02150* 02166 02167 02171 02173 02233 02240*
02245 02458* 02627* 02740* 02960* 02963* 02974 02976
02977 02985 02990 03050 03058 03425 03443* 03864*
03877 03878 03879 03883 03885 03899 03955 04191*
04223 04224 04233 04296 04307 04675* 04678 04687
04690 04700 04702 04755 05074 05241 05599* 05600*
05610 05612 05625 05629 05635 05649 05650 05652
05653 05655 05657 05710* 05712 06380 06386 06943*
06944* 06950 06954 06958 06962 06972 06973 06977
06978 06980 06983 06994 07058 07059 07153 07163
07524* 07691 08261 08262 08265 08270 08291 08295
08297 08314 08388 08425 08591 08940 08992 09018
09020 05607
SMALL INTESTINE PERFORATION
00460 00479* 00508 00509 00972 00975 01359 01376
01382 01423* 01707 01722* 02152 02159 02173 02174
02185* 02222 02223 02978 03344 03638 03867* 03887
03889 03894 03900 04243 04690 04699 04701 04702
05031* 05083 05620 05622 05635 05647 05694 05696
05712 05716 06369 06947 06951 06969 06973 07049
07059 07636 07651 07665 08245* 08271 08276 08283
SMALL INTESTINE PERFUSION
00023* 00027* 00061* 01038* 01041* 01087* 01351* 01844*
04521 05719* 06686* 07808
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03487*

SMALL INTESTINE POLYPS
00452 00462 01359 02610 03908 06990 08993
SMALL INTESTINE RADIOLOGY
00256 00276 00454 00455 00475* 00518 00521 01197*
01199* 01210* 01240 01251 01258 01350* 01359 01378
01429* 01756 02020* 02149* 02163 02172 02176 02179
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04682 04684 04687 04692 04703 04738 05623 05638
05642 05652 05654 05655 05681 05715 05728 05738*
06130* 06716* 06778 06950 06974 06975 06985 06995
07012* 07057 07142 07506 08261 08264 08280 08411*
08421 08938
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00027* 00053* 00066 00079* 00080* 00431* 00663* 01097*
01863* 01988* 02035* 02657 02662* 02666 03019 03368
03377 03508* 03594* 03597* 03672 04328 04488* 04492
04513 04522 04689 05159* 05161* 05189* 05207 05361*
05657 05719* 05857 06237* 06503* 07106* 07665 07796
07829* 07959*
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01258 04683 05648 05844
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00461 00465 00466 00516 00519* 00521 00529* 00639*
00646 00916 00937 00940 00947 00950 00953 00995
00998 01000 01001 01002 01318* 01352* 01354* 01356*
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01372 01373 01374 01376 01377 01381 01385 01386
01425 01426* 01431 01532 01722* 01807 02102* 02103*
02116 02142 02145* 02146* 02150* 02153 02154 02155
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04674* 04677 04683 04686 04693 04697 04699 04701
04702 04705 04731 04743* 04745 04747 04988 05083
05192* 05205 05389 05488 05548 05589 05595* 05597*
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05717 06036 06187 06188 06217 06258 06278 06334
06364 06369 06386 06515 06705 06881 06885 06941*
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07153 07525* 07536* 07636 07651 07713 07719* 07739
08076* 08101 08247* 08249* 08250* 08253* 08256* 08257*
08263 08271 08274 08276 08278 08284 08292 08294
08298 08301 08305 08308 08310 08314 08322 08333*
08365 08369 08404* 08433* 08452 08606 08898
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02153 02165 03831 03876 04492 05204 05627 05656
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00429* 01376 01383 02156 02158 02169 04687 04794
05047 07972* 08312
SMALL INTESTINE TREATMENT
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02230 02294 02914 02960* 02965 02995 02996 03036*
03319* 03356 03357 03388 03389 03424 05074 05082
05597* 05625 05635 05717 06975 07552 08253* 08290
08315 08404* 08414 08965
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08261 08291
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00435* 00465 01258 01350* 01382 02171 05671 08352
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01179* 01822* 01829 01830 02148* 03454* 03705 03878
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06413* 06430 06452 06453 06462 07078 07625 07719*
07726* 07728* 07735* 07751 07753 07760 07763 07787
08303
SMALL INTESTINE VOLVULUS
00429* 01363 02145* 02959* 02960* 03638 03890 04685
05597* 05646 06340 06358 06952 06953 08281 08301
08447*
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00014* 00429* 01016* 01031 01033 01038* 01368 03895
04675*
SMALL INTESTINE,ALCOHOL EFFECTS ON
01987*
SMALL INTESTINE,BIOCHEMISTRY
03595*

SMALL INTESTINE,DISEASES ASSOCIATED WITH
03053 03201 03370 05602* 05714 06980 07093 07163
08309
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00058 00276 00433* 01008* 01022* 01049* 01068* 01350*
01423* 01822* 01849* 01864* 01913* 02228 02554* 02653*
04266* 04324* 04334 04335 04487* 04521 04538 05098*
05154* 05156* 05193* 05365* 06300 06437 06494 06544
06691* 06975 06977 07763 07803 07821 07985 08286
SMALL INTESTINE,FOREIGN BODIES IN
06951 06969 08288
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00017 01008* 01022* 01063 01190 01860* 03482* 03490*
04522 05189* 05362* 06493 06559 07885* 08061
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00015* 00045* 00058 00439* 00890* 01024* 01776 01858*
01859* 01863* 02143* 02153 02540* 02657 04343 04513
05139 06381 06442 07824

SMALL INTESTINE,TOXIC EFFECTS ON
00432* 00433* 00435* 01037* 01350* 01423* 01776 01987*
02144* 02223 02544* 02993 03601* 03781 03868* 03902
04540 04675* 06237* 06450 06666* 07767 07781* 07905
07972* 01864*

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01837 02638 02661 04336* 06322 07825
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06507*
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00050* 00052* 00056* 00057 00060 01068* 01075* 01482
02659 02902* 03856 03868* 05195* 05196* 05336
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00045* 00047* 00055* 00058 00192 01075* 01820* 01834
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02653* 02656* 02658 02659 03498* 03856 04343 05092*
05188* 05190* 05195* 05196* 05207 06479* 06502* 06667*
07815*
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02089
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01060 01883* 02388 02470* 06479* 06609 08592
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00030* 00603 00658 01186 01437 01849* 01878* 02646
03362 03423 04309* 04317* 05605* 06179 06979 07781*
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03362 05164*

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01261 01283 01293 02094 02212 03730* 03749 04599*
05482
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06839
SPHINCTER OF ODDI
SEE ALSO BILIARY TRACT
00654 00860 00861 00871 00872 01515 01681* 01690
01695 01700 01718 01938 02197* 02303* 02339 02499*
02506* 02507 02510 02843 02856 03145* 03151 03282*
03289* 03292 03297 03305 03497* 04190* 04589 04833
04888 04984* 05013 05203 05464 06158 06162 06167
06188 06505* 06519 07503 07513 07519 08563* 08569
08850 08856 08868
SPHINCTER,ANUS
00059 00567* 00602 01214* 01477 01489 01818* 02263
02271 03106 03119* 03660 03991 04340 04786 04787
04798 05815 08483 08527
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00049* 00233* 00296 00310* 00313* 00314* 00340 01035
01069* 01074* 01261 01273* 01293 01294 01299 02069*
02073 02075 02761* 02864* 02865* 03500 03739* 03755
03766 05195* 05196* 06323 06324 06794* 06800* 06857
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06909
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00228* 00260 00691* 00755 00827* 00833 00837 00956
00987 00988 01602 01659 01667 01781 02032* 02549*
02555 02598 02859 02993 03253 03258* 03262* 03276
03277 03395 03592 03637 03683 03722 04099 04117
04160 04210 04286 04949 04965* 05057 05150 05566
05693 05924* 05993 05995 06026 06041 06101* 06141
06199 06261 06264 06281 06333 06746 06989 07218
07312 07643 07943 07990* 07998* 08195 08612 08655
08769 08778 08809 08925
SPLENOMEGALY
00836 00837 01429* 01673 01762 01781 03262* 03276
04123 06357 08809 08812

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00219* 00243 00244 00245 00699* 00839 01248 07204
07979 08659
SPLENORENAL SHUNT
04161
SPRUE
00262 00464 00527* 00532 00549 01183* 01441 01770
02148* 02235* 02240* 02248 03039* 03054 03056 03959*
04591 04754 05098* 05429 05600* 05719* 05729 06130*
06388 07088 08752*
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00530* 00540 00544 00555 00556 00557 00559 01427*
03058 03059 03899 03961* 03964 05446 05721* 06349
07082 07092 08413*

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00297 00624 01035 01569 01701 01824 01874 01994
03719 04285 08742
STAPHYLOCOCCAL ENTEROCOLITIS
05081 07781*

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00220*
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00063* 00117* 00125* 00127* 00141* 00161 00893* 01180*
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00560 00639* 00657 00705* 01361 01426* 01429* 01432
01434 01435 01708 01770 02149* 02235* 02245 02248
02249 02560 02801 03040* 03041* 03043* 03050 03055
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04750* 04751* 04752* 04832 04835 04851* 05024* 05179
05520* 05665* 05881* 06256 06349 06718* 06966 07065*
07070 07073 07080 07081 07084 07088 07226* 07525*
07527* 07579 07723* 08252* 08412* 08413* 08418 08426
08427 06388
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00647 08703
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04102 04125 04311* 05963 06125 07456 08796 08800
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06933
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01176*
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01176*
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01176* 01184 06602
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00130* 01559 01639 01923* 01941 01954 02388 03532*
03582 04442 05181 05352 05934 06433 06607 07440
07935
STEROID ULCER
06537*
STEROIDS
SEE ALSO CORTICOSTEROIDS
SEE ALSO LIVER CHOLESTEROL METABOLISM
00193 00504 00534 00594 00634 00692* 00693* 00784
00819* 00838 00955 00993 01145* 01148* 01170 01683
02591 02962* 03456* 03582 03583 04448 04473 04495*
04827 05064 05173 05363* 05919* 06493 06584* 06611
06887 07027 07059 07394* 07395* 07900* 08975

STOMACH
SEE ALSO BEZOARS
SEE ALSO GASTRITIS
SEE ALSO PYLORIC OBSTRUCTION
SEE ALSO ULCERS
00369* 01308* 02677* 05562 05693 06325 06467* 06504*
06681*
STOMACH ABSORPTION
00025* 00032* 01045* 01046* 04326 04331 04332 04517
05155* 05165* 05177 06492 07828* 08154
STOMACH ACID SECRETION
00005* 00007* 00013* 00051* 00068* 00071* 00072* 00073*
00074* 00075* 00076* 00077* 00078* 00079* 00080* 00081*
00082* 00083* 00084* 00085* 00086* 00090 00091 00093
00099* 00104* 00196* 00221* 00237* 00255 00302 00316*
00394 00395 00409 00411 00438* 00472* 00484 00496
00500 00503 00662* 00902* 01045* 01080* 01081* 01082*
01083* 01084* 01086* 01087* 01088* 01090* 01091* 01092*
01093* 01094* 01096* 01097* 01098 01099 01101 01102
01103 01107 01117* 01186 01202* 01216* 01249 01306*
01316* 01319* 01327 01389* 01390* 0'394* 01397* 01401

STOMACH ACID SECRETION
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01405 01406 01412 01419 01528 01726* 01752 01766
01774 01861* 01869* 01875* 01876* 01877* 01878* 01879*
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01899 01903 01904 01905 02031* 02033* 02055 02106*
02113 02117 02118 02189* 02214 02223 02604 02605
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02684* 02686 02688 02761* 02780 02817 02818 02912*
02964* 02998* 02999* 03000* 03001* 03003* 03012* 03015*
03019 03022 03023 03323* 03462* 03508* 03510* 03513*
03516* 03519 03522 03626 03644 03832 04352* 04354*
04360* 04362* 04364* 04366* 04369 04371 04373 04375
04380 04381 04484* 04556* 04581 04634 04646 04656
04707* 04715* 04721 04724 05019 05155* 05169 05184
05223* 05226* 05227* 05232* 05233* 05234* 05237* 05238*
05241 05246 05247 05248 05250 05251 05252 05386
05406* 05416 05513* 05582 05590 05692 05877 06076*
06408* 06503* 06530* 06531* 06534* 06537* 06538 06539
06543 06544 06549 06555* 06560 06708* 06709* 06733
06766 06799* 06865* 06913 06925 07022 07044 07053
07408 07609 07625 07834* 07835* 07839* 07842* 07843*
07844* 07845* 07846* 07849* 07851* 07852* 07853* 07854*
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08243 08326* 08338* 08360 08396 08584 08905
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01896*
STOMACH ANGIOGRAPHY
00369* 02134 06698 07531*
STOMACH ANOMALIES
00217* 00408 00413 01322 01512 02076 02136 02142
02575 02916 03656 03829 03837 03841 03847 04638
04640 04653 05500 05587
STOMACH BIOCHEMISTRY
00007* 00008* 00022 00068* 00069* 00070* 00075* 00076*
00087 00088 00089 00092 00364* 00366* 00374 00424
01046* 01089* 01105 01819* 01891* 01893* 01900 02214
02637 02689 03501* 03507* 03514* 03515* 03516* 03521
03524 03803 04294 04326 04370 04644 05097* 05136
05228* 05253 05366* 05384 06441 06535* 06540 06541
06547 07825 07848* 07851* 07855* 07856* 07858 07859
07966* 08155
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00196* 00236* 00305 00371* 00414 00421 01007* 02097*
02599 02670* 02898* 02910* 02931 02951 02952 02953
03009* 03013* 03018 03626 03812 04585 05411 05440
05560 05561 06013 06076* 06709* 06723 08056 08173
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00364* 00367* 00369* 00370* 00374 00382 00383 00388
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01282 01304* 01311* 01312* 01320* 01321* 01324 01329
01330 01332 01333 01335 01336 01609 01725* 01733*
01780 01782 01934 02005* 02013* 02022* 02029* 02090
02095 02100* 02101* 02103* 02104* 02105* 02109 02116
02131 02133 02135 02196* 02214 02610 02620* 02629*
02768* 02847 02896 02900* 02903* 02904* 02907* 02909*
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02936 02937 02938 02939 02940 02941 02942 02943
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03796* 03798* 03799* 03800* 03802* 03803 03804 03805
03806 03808 03809 03812 03817 03819 03823 03835
03840 03845 03850 03852 03854 03855 03856 03857
03858 03859 03860 03862 04195* 04239 04542* 04544*
04576 04584 04622* 04624* 04627* 04628* 04635 04641
04642 04643 04644 04645 04657 04659 04660 04661
04662 04663 04664 04665 04668 04669 04941 05088
05129 05397* 05416 05423 05501 05514* 05516* 05518*
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05585 05710* 06755 06860* 06862* 06880 06907 06908
06919 06921 06923 06931 07046 07248* 07523* 08056
08060 08142* 08144 08145 08146 08147 08155 08157
08165 08169 08179 08181 08189 08190 08191 08194
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00424 01387* 01934 02923 03808 03840 03857 04622*
05516* 05518* 06918 08200 08974
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00285 00287 00303 00305 00354* 00355* 00369* 00370*
00374 00376 00379 00384 00385 00391 00394 00399
00403 00405 00412 00413 00414 00420 00421 00473*
01096* 01193* 01194* 01198* 01204* 01210* 01216* 01228
01238 01250 01256 01267 01270 01305* 01308* 01310*
01324 01325 01334 01336 01346 01772 01894* 02013*
02022* 02055 02110 02114 02121 02122 02123 02126
02128 02132 02134 02135 02140 02178 02220 02575
02761* 02768* 02772 02779 02792 02794 02803 02847
02910* 02917 02918 02922 02937 02947 02986 03018
03123 03280 03614* 03626 03634 03640 03641 03653
03656 03661 03673 03675 03678 03680 03681 03689
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03835 03838 03842 03846 03847 03848 03853 03859
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04571 04576 04581 04584 04585 04593 04633 04634
04647 04651 04656 04717 04728 05048 05182 05224*
05257 05398* 05406* 05411 05450 05452 05513* 05527
05533 05538 05540 05550 05553 05560 05561 05565
05572 05575 05579 05583 05584 05586 05587 05690
06295 06344 06370 06710* 06719* 06723 06733 06735
06743 06751 06757 06775 06784 06799* 06870 06872
06879 06882 06886 06896 06897 06901 06905 07037
07046 07572 07769 07812* 07820 07839* 07994* 07997*
08003* 08004* 08021 08056 08060 08061 08137* 08139*
08141* 08150 08159 08163 08173 08183 08187 08190
08196 08207 08213 08236 08239 08318 08388 08396
09014
STOMACH DIAGNLSIS,GASTRIC ANALYSIS IN
00221* 00395 00405 00419 00421 01904 03507* 05250
05509 08061
STOMACH DIAGNLSIS,RADIOLOGY IN
06859*
STOMACH DILATATION
00362*
STOMACH DISEASE EPIDEMIOLOGY
04628* 05516* 06860* 08142* 08368
STOMACH DISEASE ETIOLOGY
00414
STOMACH DISEASES
00353* 00385 00387 00391 00552 01216* 01334 02109
02113 02129 02132 02227 02922 03813 03832 03846
03858 03997 04200* 04544* 04576 04633 04637 04639
05049 05055 05082 05416 05507 05575 05577 05578
05591 06904 07625 07632 08061 08150 08155 08167
08198 08221
STOMACH DISEASES,BIOCHEMICAL DIAGNOSIS OF
00364*
STOMACH DIVERTICULA
02121 03656 03943 05583 06905 06911 08017 08172
STOMACH DIVERTICULITIS
08172
STOMACH ELECTRLLYTE SECRETION
00067* 00068* 00069* 00070* 00082* 00091 00658 01085*
01088* 01096* 01099 01868* 01883* 01896* 02669* 02672*
02686 05398* 07847* 07854* 08951
STOMACH ENDOSCOPY
00217* 00227* 00242 00251 00287 00305 00354* 00405
00421 00473* 01193* 01194* 01204* 01269 01270 01305*
01334 01870 02002* 02026* 02044 02681* 02768* 02789
02792 02913* 03499 03626 03640 03644 03673 03678
03717 03721 03725 03799* 03812 03932 04230 04542*
04544* 04590 05048 05423 05440 05450 05452 05575
05576 05583 05586 06320 06743 06756 06775 06873
06883 07001* 08003* 08021 08179 08207
STOMACH ENZYMES
00007* 00008* 00073* 00075* 00087 00092 00364* 01033
01046* 01189 01819* 01837 01893* 02214 02637 03462*
03463* 03515* 03516* 03521 03943 04060 04305 04348*
04353* 04354* 05082 05097* 05465 06536* 06925 07745
07834* 07841* 07845* 07859

STOMACH FISTULAS
00078* 00397 00468* 01082* 01084* 01086* 01091* 01093*
01201* 01478 03123 03509* 03519 03834 04034 04360*
04484* 05555 06176 06534* 06882 07572 07835* 07861
08226 08233 06251 07857* 08174 06251
STOMACH HISTOLOGY
00005* 00006* 00008* 00011* 00013* 00018 00022 00076*
00196* 00227* 00236* 00305 00366* 00367* 00370* 00371*
00394 00396 00403 00406 00411 00414 00938 00979
01010* 01309* 01315* 01324 01344 01390* 01392* 01397*
01815* 01819* 01820* 01821* 01837 01884* 01893* 01994
02022* 02097* 02129 02187* 02628* 02637 02643* 02670*
02905* 02910* 02920 02933 02950 02951 03050 03461*
03464* 03466* 03626 03644 03681 03715 03718 03805
03838 03841 04305 04326 04585 04623* 04658 04659
05111* 05116* 05129 05227* 05228* 05401* 05533 05560
05661* 06076* 06237* 06344 06399* 06403* 06408* 06439
STOMACH HISTOLOGY
CONTINUED
06460 06862* 06888 06891 06919 07724* 07736* 07752
07769 07834* 07836* 08056 08226 08227 08371
STOMACH IMMUNOLOGY
SEE ALSO GASTRIC PARIETAL-CELL ANTIBODY
SEE ALSO INTRINSIC FACTOR ANTIBODY
00088 00353* 00357* 00365* 00366* 00404 01884* 02109
02122 02628* 02645 03444* 03804 03839 04267* 04274*
04278* 04279* 04294 04361* 05224* 05251 05521* 06227*
06906 06915 06929 07966*
STOMACH IN CHILDREN
00085* 00398 00399 00401 00408 00412 01099 01310*
02136 02142 02818 02946 03820 03825 03829 03841
04341 04596* 04636 05500 05579 06287 06549 08139*
08175 08176 08211 08213
STOMACH INJURIES
00404 00407 01306* 01342 01344 01348 01760 02099*
02106* 02878 02912* 02928 03396 03781 03818 04636
05535 05579 08152
STOMACH INTRINSIC FACTOR
00088 00365* 00393 01327 01852 02015* 02109 02645
02676* 04324* 04352* 05093* 05094* 05161* 05226* 05521*
05526 06465* 06471* 06866* 07959*
STOMACH LIPASE SECRETION
01046*
STOMACH METABOLISM
01089* 01105 01106 02688 02923 04373 04491* 08155
STOMACH MICROORGANISMS
00897* 03607 08220
STOMACH MORPHOLOGY
00018 00369* 01238 01308* 01818* 01819* 02629* 02659
02792 02875 02935 03464* 03500 03640 03656 03661
03724 03725 03818 03830 04368 04635 04639 05042
05111* 05148 05202 05551 05561 05565 05661* 06076*
06460 06492 06517 06541 06883 06905 06911 06929
06931 07859 07984 08169 08181 08199 08201 08209
08227 08228
STOMACH MOTILITY
00048* 00050* 00051* 00054* 00066 00361* 00387 00391
00398 00416 00506 00512 00960 01059 01072* 01083*
01190 01201* 01210* 01238 01255 01316* 01334 01421
01820* 01837 01857* 01861* 01868* 01869* 01870 01873
01902 02021* 02044 02104* 02111 02112 02113 02119
02120 02140 02141 02210 02576 02659 02668 02687
02761* 02767* 02875 02879 02924 03003* 03014* 03020
03292 03432 03496* 03499 03500 03504* 03807 03056
04341 04344 04513 04631* 04648 05051 05182 05186*
05188* 05189* 05192* 05198* 05202 05225* 05252 05257
05554 05572 05594 06245 06503* 06508* 06509* 06514
06516 06517 06520 06859* 06897 07596 07801 07812*
07814* 07815* 07818 07820 07822 07823 07825 08154
08162 08199 08213 08318 08376
STOMACH MUCOSA
00005* 00006* 00007* 00008* 00011* 00018 00022 00066
00069* 00070* 00075* 00076* 00087 00089 00090 00092
00196* 00227* 00236* 00241 00255 00271 00355* 00358*
00359* 00366* 00371* 00375 00378 00379 00380 00403
00404 00405 00411 00413 00472* 00884* 00902* 00938
01007* 01010* 01045* 01046* 01084* 01085* 01086* 01089*
01095* 01100 01106 01201* 01270 01304* 01305* 01306*
01307* 01309* 01315* 01316* 01325 01327 01333 01342
01389* 01390* 01405 01416 01686 01760 01819* 01821*
01837 01838 01868* 01875* 01877* 01878* 01880* 01881*
01884* 01886* 01887* 01888* 01891* 01893* 01894* 01895*
01896* 01897* 01898* 01899 01901 02021* 02097* 02099*
02106* 02114 02121 02123 02187* 02203 02204 02210
02324* 02605 02620* 02628* 02629* 02633 02643* 02670*
02671* 02673* 02675* 02683* 02685 02687 02688 02741*
02878 02898* 02899* 02912* 02933 02935 02944 02951
02952 02953 02964* 03000* 03001* 03014* 03015* 03019
03432 03461* 03462* 03463* 03464* 03466* 03503* 03504*
03510* 03513* 03516* 03519 03521 03524 03673 03680
03709 03721 03734* 03793* 03805 03806 03808 03813
03816 03838 03839 03857 04274* 04279* 04305 04324*
04348* 04351 04364* 04365* 04368 04370 04373 04382
04501* 04504* 04544* 04581 04646 05051 05055 05097*
05116* 05135 05142 05153 05160* 05190* 05201 05227*
05228* 05230* 05231* 05257 05386 05406* 05416 05440
05465 05524 05533 05551 05568 05576 05579 05583
05587 05591 05594 05661* 05663* 05692 05878 05879
06076* 06227* 06237* 06399* 06402* 06403* 06408* 06439
06441 06449 06529* 06531* 06534* 06535* 06540 06541
06547 06548 06549 06709* 06719* 06723 06751 06784
06824 06874 06883 06890 06896 06906 06910 06925
06930 07035 07040 07625 07724* 07752 07801 07825
07834* 07836* 07839* 07841* 07846* 07859 07966* 07986
07996* 07997* 08135* 08152 08158 08182 08186 08196
08200 08227 08228 08240 08242 08264 08318 08325*
08940 05111*
STOMACH MUCOSAL INJURIES
01105 01348 01397* 02211 04382 08184

STOMACH MUCUS SECRETION
00070* 00366* 01086* 02031* 03501* 03515* 03516* 03517*
03524 04382 05416 06320 06548 07851*
STOMACH NECROSIS
08187 08192

STOMACH NEOPLASMS
00383 00405 00406 01216* 01336 02114 02123 02125
02129 02551* 02847 02947 03795* 03798* 03816 04211
04658 04666 05078 05524 05533 05557 05575 05586
06751 06882 06888 06892 06928 06938 07206 08196
08224 08229 08236 08371
STOMACH NEOPLASMS,BENIGN
00303 00355* 00372 00376 00380 00403 01346 02110
02128 02129 02132 02135 02930 03018 03641 03661
03681 03811 03833 03838 03846 03848 03853 05401*
05527 05531 05538 05541 05551 05553 05559 06861*
06862* 06871 06901 07020 08159 08168 08176 08183
08186 08207 08215
STOMACH NEOPLASMS,MALIGNANT
00241 00303 00364* 00367* 00370* 00381 00382 00384
00388 00414 00424 00427 01312* 01321* 01323 01324
01332 01402 02005* 02013* 02126 02129 02131 02133
02134 02135 02847 02896 02922 02933 02934 02935
02936 02937 02938 02939 02940 02941 02942 02943
02944 02945 02948 02950 02954 02955 03614* 03715
03718 03741 03798* 03800* 03802* 03803 03804 03805
03806 03812 03817 03821 03822 03838 03840 03845
03860 03862 03932 04274* 04305 04544* 04584 04627*
04635 04652 04654 04657 04659 04660 04661 04662
04663 04664 04665 04668 04669 04670 05023* 05088
05129 05275* 05401* 05501 05514* 05518* 05522* 05523*
05534 05536 05537 05539 05540 05542 05547 05550
05559 05560 05563 05564 05585 05674 06344 06737
06792* 06860* 06861* 06870 06871 06873 06875 06876
06877 06881 06886 06889 06893 06896 06899 06907
06919 06921 06923 06926 06927 06929 06932 06936
07045 07516 07534* 08070* 08137* 08150 08163 08166
08170 08171 08173 08177 08183 08198 08207 08219
08222 08227 08230 08232 08234 08237 08238 08240
08241 08242 08323 08902 08974 02610
STOMACH OBSTRUCTION
00390 00412 00656 01287 02528 02918 03825 03830
06822 06895 07045 08139*
STOMACH PATHOLOGY
00018 00324 00355* 00358* 00367* 00371* 00372 00376
00381 00385 00406 00414 00424 00486 01007* 01228
01269 01312* 01315* 01321* 01329 01342 01346 01403
01724* 02114 02123 02129 02132 02134 02135 02599
02625* 02645 02912* 02919 02920 02952 02953 03027
03050 03269 03466* 03507* 03651 03816 03824 03833
03838 03856 04211 04371 04544* 04629* 04633 04634
04639 04725 04726 05055 05386 05411 05522* 05523*
05524 05527 05536 05544 05553 05560 05572 05584
05585 05586 06344 06710* 06873 06892 06929 06933
07023 07524* 07572 08021 08147 08148 08152 08153
08158 08159 08187 08192 08194 08196 08201 08211
08215 08216 08217 08220 08236 08940
STOMACH PEPSIN SECRETION
00008* 00067* 00071* 00074* 00082* 00087 00092 00104*
00473* 00496 01080* 01086* 01088* 01327 01876* 01881*
01883* 01885* 01888* 01892* 01897* 02214 02669* 02672*
02674* 02676* 02899* 03000* 03505* 03516* 03632 04354*
04360* 04368 04372 04484* 04724 05233* 05234* 05582
06076* 06530* 06545 07835* 07840* 07848* 08226 08325*
STOMACH PERFORATION
00350 00388 00407 00472* 00508 00626 00936 01204*
01310* 01319* 01322 02186* 02222 02928 03027 03841
03853 03861 04197* 04665 05031* 05246 05573 05592
06872 06908 07049 07606 07651 08175 08216 08221
STOMACH PERFUSION
01072*
STOMACH PHYSIOLOGY
03507*
STOMACH POLYPS
00227* 00427 01336 02911* 02935 02986 03614* 03824
03846 03855 05584 06928 08214 08227 08239
STOMACH RADIOLOGY
00198* 00227* 00280 00285 00287 00303 00323 00354*
00355* 00369* 00377 00378 00379 00399 00408 00414
00473* 01198* 01210* 01238 01250 01256 01262 01269
01270 01308* 01334 01346 01403 02002* 02013* 02022*
02104* 02110 02114 02121 02126 02128 02132 02134
02135 02220 02575 02599 02659 02768* 02792 02794
02918 02931 02937 02947 02986 03123 03269 03500
03614* 03626 03640 03641 03652 03653 03656 03661
03680 03681 03724 03726 03811 03816 03818 03833
03838 03847 03860 03932 04064 04571 04593 04631*
04648 04651 04728 05042 05048 05182 05486 05494
05527 05538 05553 05583 05584 05586 05587 05690
05924* 06370 06698 06719* 06751 06757 06775 06784
06794* 06857 06859* 06861* 06874 06884 06896 06901
06905 06911 06916 06975 07037 08004* 08168 08169
08193 08210 08211 08213 08219 08226 08239 08244*
08318 08388

STOMACH SECRETION
00022 00051* 00066 00087 00088 00089 00107 00348
00353* 00374 00397 00411 00424 00506 01033 01089*
01095* 01201* 01267 01304* 01315* 01403 01760 01876*
01886* 01887* 01888* 01895* 01898* 02021* 02109 02139
02217 02225 02553* 02576 02629* 02633 02671* 02679*
02680* 02681* 02685 02686 02687 02689 02741* 02780
02917 03014* 03019 03020 03464* 03504* 03505* 03507*
03510* 03511* 03512* 03514* 03523 03525 03816 03928*
03993 04060 04305 04324* 04326 04328 04344 04352*
04353* 04355* 04356* 04357* 04363* 04367 04376 04377
04378 04382 04384 04394 04492 04513 04550* 04556*
04644 04715* 04718 04732 04737 05116* 05136 05160*
05161* 05189* 05200 05225* 05230* 05232* 05235* 05236*
05238* 05240 05249 05253 05254 05255 05406* 05465
05529 05540 05591 05662* 06177 06222 06237* 06244
06327 06467* 06468* 06498 06509* 06529* 06530* 06532*
06536* 06541 06545 06695 06719* 06735 06897 06919
07001* 07018 07526* 07765 07774 07829* 07836* 07838*
07840* 07841* 07847* 07853* 07856* 07857* 07858 08008*
08060 08190 08197 08327* 08332* 08376 08915 05228*
STOMACH SECRETION DISORDERS
00081* 00083* 00196* 00221* 00237* 00302 00316* 00319*
00364* 00365* 00393 00395 00402 00404 00472* 00486
00489 00497 00662* 00897* 00911 00953 01090* 01216*
01327 01334 01336 01421 01742 01883* 02015* 02084
02100* 02117 02189* 02201 02343* 02645 03009* 03023
03518* 03943 04341 04367 04656 05093* 05094* 05256
05257 05568 06543 06708* 06733 08226
STOMACH SECRETION IN DISEASE
00364* 00785 01410 02682* 02817 02913* 04366* 04715*
05226*

STOMACH SECRETION STUDY TECHNIQUES
00067* 00069* 00070* 00071* 00078* 00080* 00085* 00086*
00090 00092 00093 00196* 00221* 00237* 00255 00261
00287 00503 01046* 01082* 01084* 01094* 01099 01104
01107 01108 01202* 01249 01254 01388* 01388* 01889*
01899 01901 01905 02031* 02051 02679* 02681* 02686
02780 02817 02818 02913* 03516* 03632 04326 04364*
04371 04372 04381 05116* 05161* 05245 05246 05249
05416 05432 05595* 06532* 06538 06708* 06766 07801
07836* 07838* 07861 07996* 08141* 08143* 08338* 06530*

STOMACH SECRETION,DRUG EFFECTS ON
00255 01088* 01091* 01092* 01093* 01094* 01306* 01401
01405 01883* 01888* 01892* 01903 02051 02117 02542*
02604 02605 02669* 03518* 03519 03520 03832 03934
03935 03936 03939 04324* 04341 04366* 04369 04379
04382 04383 04550* 05161* 05199 05229* 05237* 05238*
05239 05244 05252 05662* 06468* 06509* 06529* 06530*
06536* 06537* 06545 06708* 07047 07829* 07835* 07839*
07840* 07843* 07846* 07847* 07850* 07852* 07959* 08135*
08396 06533*
STOMACH SECRETION,HORMONAL CONTROL OF
00067* 00071* 00073* 00078* 00079* 00080* 00082* 00085*
00086* 00089 00104* 00192 00496 01081* 01086* 01087*
01088* 01090* 01097* 01098 01101 01102 01103 01104
01108 01202* 01316* 01405 01406 01528 01752 01775
01879* 01880* 01883* 01885* 01886* 01887* 01889* 01890*
01891* 01894* 01895* 01897* 01901 01904 02031* 02033*
02055 02542* 02669* 02672* 02676* 02678* 02679* 02683*
02684* 02690 02818 03002* 03019 03439 03504* 03506*
03508* 03511* 03513* 03518* 03940 03942 03943 04229
04357* 04368 04374 04375 04376 04378 05190* 05243
05252 05582 06546 07845* 07854* 07869* 08061 08226
07853*

STOMACH SECRETION,NERVOUS CONTROL OF
00074* 00077* 00080* 00082* 00083* 00492 00496 00500
01083* 01097* 01100 01103 01104 01294 01406 01410
01861* 01879* 01881* 01902 02669* 02817 02926 03003*
03019 03616* 04357* 04364* 04513 05232* 05245 05252
05582 05690 06076* 06533* 06913

STOMACH STRICTURE
02927
STOMACH SURGERY
SEE ALSO GASTRECTOMY
00308* 00309* 00330 00345 00353* 00354* 00355* 00361*
00363* 00372 00380 00381 00382 00383 00384 00391
00398 00405 00408 00414 00416 00417 00420 00422
00427 00469* 00470* 00479* 00480* 00497 00498 00500
00513 00514 00516 00525 00656 00673 00953 01100
01254 01272* 01279* 01287 01294 01308* 01310* 01314*
01316* 01317* 01324 01329 01334 01340 01391* 01396*
01398* 01403 01404 01408 01417 01419 01422 01700
01752 01760 01880* 02100* 02102* 02104* 02105* 02107*
02110 02112 02115 02123 02125 02130 02136 02137
02138 02139 02141 02142 02182 02183 02185* 02186*
02197* 02198* 02201 02214 02217 02218 02219 02220
02221 02222 02224 02227 02528 02584 02616 02762*
02779 02872 02873 02900* 02901* 02903* 02909* 02916

STOMACH SURGERY
CONTINUED
02921 02924 02925 02928 02929 02930 02932 02933
02934 02936 02940 02941 02943 02947 02949 02956
02979 02995 03008* 03016* 03017 03018 03026 03027
03032 03123 03134* 03139 03292 03301 03347 03396
03402 03495 03512* 03525 03661 03757 03781 03796*
03797* 03798* 03800* 03809 03811 03815 03816 03823
03824 03827 03829 03831 03846 03848 03849 03850
03853 03858 03859 03861 03862 03892 03921* 03928*
03933 03938 03944 03948 03949 03950 04034 04062
04211 04238 04364* 04492 04513 04598* 04624* 04626*
04628* 04631* 04632* 04633 04635 04636 04637 04640
04641 04642 04645 04646 04647 04649 04650 04651
04653 04654 04665 04667 04669 04705 04713* 04714*
04731 04733 04741 04842 04852* 04859 05031* 05088
05186* 05202 05246 05386 05427 05455 05456 05486
05515* 05517* 05530 05532 05533 05539 05544 05546
05548 05549 05551 05565 05566 05571 05572 05573
05574 05577 05579 05581 05582 05584 05595* 05656
05667* 05669* 05675 05676 05678 05683 05699 05708
05877 05878 05879 05880 05883* 06160 06176 06244
06274 06388 06542 06790* 06863* 06867* 06871 06880
06885 06891 06892 06893 06901 06902 06904 06908
06911 06912 06914 06916 06923 06924 06937 07003*
07011* 07016 07018 07020 07032 07536* 07648 07651
07812* 07822 08070* 08141* 08149 08151 08156 08162
08167 08169 08174 08184 08188 08192 08193 08199
08203 08204 08205 08208 08215 08219 08221 08223
08231 08233 08235 08238 08243 08254* 08327* 08328*
08332* 08358 08386 08400 08583 08606 08895* 08905
STOMACH SURGERY COMPLICATIONS
05200 05665* 08136*
STOMACH SURGERY TECHNIQUES
00345 00360* 00368* 00386 00400 00401 00423 00484
00503 00505 00515 01310* 01331 01335 01339 01345
01347 01705 02103* 02116 02124 02137 02141 02192*
02194* 02224 02926 02929 03807 03820 03826 03837
03843 04598* 04639 05588 05593 06800* 06863*

STOMACH TRANSPLANTATION
00345 00349 07739
STOMACH TRAUMA
06867* 06868*
STOMACH TREATMENT
00391 00394 00408 00409 00898* 02099* 02112 02118
02205 02907* 02914 02930 02946 03017 03026 03781
03807 03829 03832 04590 04634 04648 05082 05256
05257 05543 05575 06927 08141* 08155 08897*

STOMACH ULCERS
00227* 00250 00358* 00367* 00377 00396 00418 00470*
00473* 00478* 00482* 00483 00486 00490 00495 00498
00504 00505 00508 00513 00517 01089* 01262 01307*
01309* 01321* 01387* 01389* 01390* 01392* 01394* 01400
01405 01407 01412 01416 01419 01420 01724* 01730*
01760 01766 01811 01900 02031* 02090 02103* 02114
02131 02139 02195* 02202 02203 02204 02214 02216
02220 02221 02222 02225 02226 02227 02422 02599
02685 02780 02913* 02937 02941 03004* 03005* 03006*
03007* 03008* 03010* 03011* 03013* 03014* 03017 03018
03019 03026 03027 03029 03030 03031 03032 03033
03034 03050 03284* 03351 03456* 03466* 03614* 03689
03718 03834 03835 03856 03892 03915* 03921* 03922*
03929 03930 03932 03933 03934 03935 03942 03943
04062 04084* 04207* 04274* 04353* 04356* 04359* 04371
04384 04495* 04504* 04542* 04634 04647 04648 04650
04713* 04714* 04715* 04716* 04717 04719 04720 04721
04722 04725 04726 04727 04728 04729 04730 04733
04736 04740 04741 05063 05164* 05199 05225* 05227*
05228* 05246 05416 05527 05564 05573 05578 05583
05587 05663* 05670 05672 05674 05676 05678 05682
05683 05685 05689 05693 05699 05701 05702 05704
05706 05708 05927 06061 06235* 06295 06534* 06733
06751 06865* 06898 06914 06915 06920 06922 06923
06930 07001* 07003* 07011* 07013* 07015* 07016 07019
07020 07025 07029 07031 07035 07041 07042 07043
07044 07046 07047 07049 07408 07482 07834* 07855*
07860 07994* 08060 08074* 08092 08156 08158 08190
08208 08324* 08325* 08335* 08336* 08340 08341 08349
08354 08355 08356 08359 08360 08362 08363 08365
08367 08368 08371 08372 08373 08374 08383 08388
08391 08396 08446* 08897* 08936 08983 09022 05223*
05661* 05667* 06999* 07000* 07008* 07048 07838*
STOMACH ULTRASTRUCTURE
00005* 00006* 00007* 00008* 00011* 00018 00022 00406
01095* 01315* 01344 01820* 01838 02637 05116* 06402*
06403* 06449 06531* 07625 07752 08056 08137*
STOMACH VARICES
01256 03351
STOMACH VULVULUS
03830 04671 05530 05565 08185 08201

STOMACH,AGE EFFECTS ON
00085* 00396 01033 04274* 04629* 06857
STOMACH,DISEASES ASSOCIATED WITH
02127 02343* 02938 05241 06835 08154
STOMACH,DRUG EFFECTS ON
00054* 00084* 00394 01105 01106 01255 01306* 01820*
01821* 01868* 01869* 01870 01900 02106* 02113 02670*
02688 02902* 03034 04356* 04380 04716* 05135 05161*
05177 05251 05257 05513* 05702 06227* 06441 06449
06540 06560 06891 06897 06910 06918 06922 06975
07024 07041 07724* 07818 08328*
STOMACH,DRUG TREATMENT OF
01348 03015* 07558
STOMACH,FOREIGN BODIES IN
00420 05031* 06879

STOMACH,HORMONAL CONTROL OF
00367* 00478* 00489 00504 01821* 01869* 02629* 03005*
03030 03522 03524 03839 04326 05231* 06408* 06534*
07837* 08061
STOMACH,NERVOUS CONTROL OF
00006* 00362* 00387 00394 00416 00474* 00489 01072*
01316* 01344 01417 01818* 01820* 01857* 01861* 01870
01873 02111 02112 02113 02119 02120 02206 02633
02879 02924 02930 02949 03020 03026 03510* 04648
05189* 05257 05594 07035 07041 08376
STOMACH,TOXIC EFFECTS ON
00358* 01305* 01342 01344 01772 01875* 01877* 01905
02099* 02106* 02223 02544* 02928 02954 03396 03510*
03520 03781 03929 04636 05535 06237* 06823 06868*
06894 06895 08242
STRANGULATION
00326 00352 00936 01468 01746 03413 05806 06363
07637 08245* 08257*
STRESS
05107*
STRESS FACTORS
01162 01172 01496* 02755 03379 08402
STRESS FACTORS IN ULCERS
00063* 00478* 00508 00517 01089* 01390* 01405 02187*
02195* 02204 02207 03010* 03034 03917* 03931 04351
04511* 04713* 04716* 04727 05223* 05225* 05228* 05663*
05668* 05689 05700 06999* 07000* 07010* 07014* 07040
07053 07605 08328* 08364 08391 08549
STRESS,GRAVITATIONAL
00314*
STRICTURE,BILIARY TRACT
01392* 01675* 01702 02367 02520 02532 03285* 03287*
03828 05002 06133* 06187 06198 07467* 07486
STRICTURE,ESOPHAGUS
00316* 00329 00336 00339 00340 00349 00947 01272*
01274* 01279* 01285 01300 02067* 02073 02079 02084
02212 02862* 02866* 02881 03066* 03731* 03737* 03742
03746 03751 03754 03785 03786 03787 03789 04211
04542* 05435 05467* 05468* 05471* 05473* 05476 05481
05502 05507 05508 05582 06324 06368 06797* 06805
06806 06807 06809 06895 08077* 08079* 08085 08094
08095 08096 08116 08119 08130 08131
STRICTURE,GASTROINTESTINAL
08201
STRICTURE,LARGE INTESTINE
04027 08451 08525
STRICTURE,SMALL INTESTINE
01258 04683 05648 05844
STRICTURE,STOMACH
02927
STRICTURES,BILIARY TRACT
02509
STRICTURES,ESOPHAGUS
05503
STRONTIUM ABSORPTION
06500
STUDIES OF CANCER,CLINICAL
08010*
STUDIES OF CANCER,EXPERIMENTAL
07921 07922 08241 08240 08685
STUDIES OF CIRRHOSIS,CLINICAL
08065*
STUDIES OF CIRRHOSIS,EXPERIMENTAL
07427* 08814
STUDIES OF ESOPHAGUS,CLINICAL
08068*
STUDIES OF HEPATITIS,CLINICAL
02454* 07414
STUDIES OF HEPATITIS,EXPERIMENTAL
03246 04949
STUDIES OF JAUNDICE,CLINICAL
04744 05919*
STUDIES OF LIVER,EXPERIMENTAL
05314 07879*
STUDIES OF PANCREAS,CLINICAL
05863

STUDIES OF PEPTIC ULCERS,CLINICAL
07033
STUDIES OF SAMMONELLOSIS,CLINICAL
06233*
STUDIES OF SCHISTOSOMIASIS,CLINICAL
04089*
STUDIES OF SCHISTOSOMIASIS,EXPERIMENTAL
03238*
STUDIES OF ULCERATIVE COLITIS,CLINICAL
02297* 03123 04041* 04828

STUDY TECHNIQUE,STOMACH SECRETION
06530*
STUDY TECHNIQUES,ABSORPTION
00029* 00258 00262 00466 01040* 01041* 01052 01053
01054 01058 01061 01064 01373 01437 01844* 01856
02024* 02027* 02586 02823 02861 03494 03705 04559
05695 06259 07735*
STUDY TECHNIQUES,BILE SECRETION
04310*
STUDY TECHNIQUES,DYE
SEE MARKER STUDIES
STUDY TECHNIQUES,GASTROINTESTINAL CIRCULATION
01192 04521
STUDY TECHNIQUES,RADIOISOTOPE
SEE ALSO TRACER STUDIES
04546* 07779* 07814* 08006* 08595* 08620*
STUDY TECHNIQUES,SECRETION
00105 00206* 00288 00395 01096* 01109* 01110* 01844*
01915 02669* 02761* 02837 03672 03683 05413 05430
08020
STUDY TECHNIQUES,STOMACH SECRETION
00067* 00069* 00070* 00071* 00078* 00080* 00085* 00086*
00090 00092 00093 00196* 00221* 00237* 00255 00261
00287 00503 01046* 01082* 01084* 01094* 01099 01104
01107 01108 01202* 01249 01254 01388* 01388* 01889*
01899 01901 01905 02031* 02051 02679* 02681* 02686
02780 02817 02818 02913* 03516* 03632 04326 04364*
04371 04372 04381 05116* 05161* 05245 05246 05249
05416 05432 05595* 06532* 06538 06708* 06766 07801
07836* 07838* 07861 07996* 08141* 08143* 08338*
STUDY,HEIDENHAIN POUCH
05160* 05229* 06529*

SUCROSE ABSORPTION
05730 01745

SUGAR INTOLERANCE
00538 01436 01754 02250 03720 03966 05024* 05730
06673

SULFOBROMOPHTHALEIN
00035* 00146 00701* 00772* 00784 00991 01147* 01217*
01539* 01572 02004* 02014* 02345* 02347* 02351* 02391
02502* 02601 02703* 02744 02757* 02793 02797 02833
02834 03172* 03194 03218* 03222 03233* 03235* 03283*
03478* 03532* 03593 03612* 03619 03662 03688 03803
04102 04127 04156* 04310* 04323* 04408* 04476 04595
04861* 04936 04997 05277* 05412 05426 05427 05428
05443 05457 05933 05989 05990 06021 06064 06097*
06474* 06576* 06591* 06746 06755 06771 06772 06780
07365 07430* 07778* 07831 07913 08016 08018 08375
08743 05321 05442
SULFUR METABOLISM
01089*

SURGERY APPARATUS
02137 02175 06246 08140*
SURGERY COMPLICATIONS
02179 02593 04789 05124 05475 05477 05487 05554
05668* 05676 05680 05768 05769 05885 05948 05966
06026 06045 06106 06148 06219 06246 06252 06264
06270 06271 06272 06335 06336 06693 06815 07046
07050 07083 07166 07288 07308 07486 07487 07583
08081 08326* 08327* 08444* 08466 08599* 08667
SURGERY COMPLICATIONS,STOMACH
05200 05665* 08136*
SURGERY IN CHILDREN
01470

SURGERY TECHNIQUES
00318* 00321 00328 00330 00333 00337 00397 00417
00437* 00468* 00480* 00501 00567* 00577 00587 00589
00602 00614 00651 00679* 00687* 00718 00742 00845*
00846* 00849* 00937 00940 00995 01272* 01274* 01280*
01286 01295 01296 01303 01356* 01445* 01460 01481

SURGERY TECHNIQUES
CONTINUED
01483 01489 01504* 01520 01544* 01546* 01549* 01565
01620 01691 01696 01697 01704 01716 01767 01805
02061* 02064* 02074 02077 02079 02095 02102* 02139
02146* 02154 02165 02175 02179 02183 02186* 02190*
02201 02224 02229 02261 02291 02292 02293 02312
02315 02332 02333 02447 02507 02510 02600 02693
02872 02874 02885 02895 02932 02997 03027 03032
03070* 03079* 03102 03108 03112 03162* 03163* 03174
03202 03282* 03304 03338 03347 03352 03382 03392
03417 03426 03568 03756 03762 03763 03777 03783
03784 03815 03831 03876 03897 03906 03909 03991
04001 04002 04013 04025 04061 04062 04067* 04119
04182 04219 04220 04238 04283 04604 04626* 04640
04646 04693 04701 04706 04767 04787 04805 04833
04848 04895 04899 04970 04988 04992 04996 05057
05075 05330 05331 05348 05389 05444 05474 05475
05477 05479 05488 05493 05498 05502 05549 05577
05589 05628 05637 05648 05659 05672 05680 05768
05807 05808 05809 05815 05821 05828 05836 05898
05956 05966 06001 06002 06016 06017 06039 06041
06133* 06144 06188 06208 06219 06264 06308 06330
06370 06612 06644 06687* 06696 06705 06738 06773
06806 06807 06820 06844 06851 06855 06900 06902
06903 06955 06959 07017 07029 07052 07109 07111
07113 07147 07166 07343 07349 07357 07443 07478
07486 07610 07644 07656 07699 07878* 07978 08076*
08092 08108 08124 08125 08161 08181 08204 08221
08277 08284 08293 08298 08307 08333* 08343 08344
08347 08364 08377 08382 08386 08395 08448 08451
08460 08466 08485 08497 08558 08563* 08816 08853
08864 08868 08873 08887 08912 08967
SURGERY TECHNIQUES,EXPERIMENTAL
06689*
SURGERY TECHNIQUES,STOMACH
00345 00360* 00368* 00386 00400 00401 00423 00484
00503 00505 00515 01310* 01331 01335 01339 01345
01347 01705 02103* 02116 02124 02137 02141 02192*
02194* 02224 02926 02929 03807 03820 03826 03837
03843 04598* 04639 05588 05593 06800* 06863*
SURGERY,ABDOMEN
00326 00397 00400 00407 00427 00439* 00462 00522
00550 00653 00750 00755 00783 00838 00883* 00885*
00908 00928 00939 00947 00957 00975 00978 00986
00991 01287 01383 01455 01467 01473 01479 01515
01521 01527 01747 01753 01762 01767 01779 01811
02032* 02068 02069 02072 02141 02152 02183 02332
02530 02549* 02555 02590 02598 02602 02616 02766*
02783 02791 02858 03031 03065* 03091 03314* 03330
03336 03347 03382 03395 03409 03419 03430 03431
03781 03830 03890 03894 04004 04025 04026 04196*
04213 04219 04220 04221 04238 04240 04257 04541*
04578 04698 04741 04853* 04901 05075 05427 05462
05490 05583 05616 05618 05620 05783 05811 05811
05813 05819 05827 05853 05885 05971 06045 06196
06246 06253 06257 06261 06262 06264 06270 06271
06273 06282 06289 06330 06331 06336 06338 06350
06362 06363 06368 06370 06374 06715* 06725 06811
07130 07147 07165 07533* 07578 07581 07614 07641
07642 07656 07816 08031 08108 08178 08182 08293
08313 08488 08871 08908 08910 08912 08937 08940
08986 09000 09025 06335

SURGERY,ANORECTAL
01464 01470 01489 02612 03991 04767 04768 04798
SURGERY,ANUS
00567* 01460 01477 02260 02276 02280 02291 02292
02296 03101 04001 04003 04779 04788 05808 05815
07097* 07109 07159 08451 08455 08485

SURGERY,APPENDIX
01447* 01474 04763* 05768 05774 05775 07100* 07181
08474

SURGERY,BILIARY TRACT
00283 00306 00639* 00667* 00673 00678* 00679* 00703*
00783 00817* 00845* 00848* 00849* 00852 00853 00856
00857 00861 00862 00864 00869 00870 00871 00876
00879 00881 00969 01205* 01239 01521 01532 01533*
01544* 01545* 01553* 01560 01561 01675* 01676* 01677*
01678* 01679* 01681* 01687 01688 01689 01690 01691
01692 01693 01696 01697 01698 01699 01702 01703
01706 01707 01709 01712 01716 01718 02303* 02312
02315 02335 02365 02367 02497* 02498* 02499* 02503*
02504* 02505* 02507 02509 02510 02511 02512 02517
02522 02524 02526 02529 02530 02531 02532 02535
02536 02537 02538 02783 02784 03152 03188 03190
03281* 03282* 03287* 03288* 03289* 03291 03295 03296
03297 03299 03300 03302 03304 03306 03307 03568
03665 03704 03828 03910 04053* 04069* 04088* 04166*

SURGERY,BILIARY TRACT
CONTINUED
04168* 04176* 04178 04179 04182 04283 04508* 04573
04688 04833 04852* 04853* 04888 04899 04931 04983*
04984* 04986* 04992 04996 05001 05002 05006 05012
05013 05015 05016 05086 05137 05433 05444 05464
05668* 05890 05898 05935 05946 06001 06002 06019
06126* 06128* 06133* 06135* 06136* 06140 06146 06151
06152 06156 06158 06162 06168 06175 06176 06188
06189 06206 06207 06208 06209 06213 06217 06218
06219 06220 06222 06308 06417 06519 06768 06773
06924 07230* 07288 07301 07306 07343 07469* 07477
07478 07483 07486 07487 07491 07495 07499 07503
07504 07508 07513 07517 07519 07536* 08136* 08299
08563* 08569 08617 08705 08831* 08835* 08842 08845
08848 08853 08856 08857 08858 08863 08864 08868
08870 08873 08881 08887 06198 05885 06195

SURGERY,CANCER
00219* 00321 00322 00354* 00382 00383 00417 00422
00426 00493 00577 00593 00604 00605 00611 00637
00639* 00643* 00652 00656 00660 00683* 01167 01285
01302 01320* 01329 01332 01335 01445* 01448* 01451*
01480 01483 01484 01490 01503* 01566 01697 01767
02029* 02067* 02074 02081 02082 02083 02085 02086
02092 02103* 02104* 02105* 02116 02268 02269 02270
02281 02308 02314 02365 02369 02498* 02552* 02896
02900* 02903* 02909* 02921 02933 02934 02936 02939
02940 02941 02942 02943 02944 02950 02957* 02968
03061* 03079* 03197 03203 03290* 03291 03315* 03393
03647 03741 03753 03762 03763 03770 03778 03783
03800* 03817 03821 03823 03854 03855 03858 03862
03969* 04004 04019 04052* 04096 04116 04188 04225
04239 04283 04604 04610 04635 04641 04642 04665
04691 04773 04799 04800 04801 04802 04848 04891
04941 04990 04996 05497 05501 05514* 05539 05567
05573 05574 05658 05762 05799 05817 05824 05827
05831 06175 06210 06395 06854 06899 06923 07136
07196* 07237* 07248* 07325 07355 07358 07359 08093
08120 08122 08147 08157 08169 08171 08181 08202
08208 08216 08217 08218 08234 08238 08259 08276
08277 08305 08320 08354 08462 08488 08500 08509
08510 08568 08576 08727 08985 09015
SURGERY,CHOLELITHIASIS
00210* 00679* 00861 00881 01685 01687 01688 01689
01690 01691 01692 01693 01695 02339 02531 03282*
04085* 04168* 04171* 04172* 04173* 04174* 04853* 06145
06209 07536* 08563* 08836
SURGERY,CLINICAL RESULTS OF
06998* 07003* 07004* 07034 07104* 07470* 07499 08067*
08331* 08764*
SURGERY,DUODENUM
00463 00467 00503 01339 01352* 01364 01697 01699
02138 02159 02169 02176 02183 02201 02208 02220
02222 02224 02307 02339 02507 02527 02693 02929
02966 02982 02987 03026 03027 03302 03315* 03402
03797* 03882 03895 03897 03909 03915* 03916* 03921*
03923* 03924* 03928* 04182 04374 04649 04650 04676*
04681 04688 04691 04695 04704 04730 04739 04848
05012 05031* 05444 05456 05554 05589 05622 05647
05656 05658 05659 05667* 05675 05676 05677 05680
05696 05703 05874 06903 06923 06945* 06947 06956
06959 06988 07003* 07052 08151 08206 08258 08272
08284 08296 08304 08307 08320 08333* 08345 08370
08387 08563* 08568 08576 08606 08684 08853 08881

03436

SURGERY,ESOPHAGUS
00309* 00311* 00316* 00318* 00321 00328 00329 00331
00332 00333 00336 00337 00339 00340 00341 00344
00345 00347 00348 00349 00350 00947 01035 01272*
01274* 01277* 01278* 01279* 01281 01284 01286 01287
01290 01291 01295 01296 01299 01303 01605 02061*
02062* 02063* 02064* 02067* 02070 02071 02073 02074
02076 02077 02078 02079 02080 02084 02086 02088
02089 02092 02094 02095 02096 02112 02373 02863*
02865* 02867* 02872 02876 02877 02881 02884 02885
02892 02893 02897 03066* 03338 03396 03655 03729*
03730* 03731* 03736* 03739* 03750 03751 03752 03754
03755 03756 03757 03759 03762 03763 03767 03770
03771 03776 03777 03778 03779 03780 03782 03783
03784 03790 03791 03792 03892 04598* 04599* 04602*
04603 04604 04610 04611 04612 04618 04621 04867*
05029* 05031* 05088 05434 05467* 05468* 05469* 05470*
05471* 05472* 05473* 05474 05476 05477 05478 05480
05483 05486 05487 05488 05490 05493 05496 05497
05498 05499 05502 05503 05504 05506 05507 05609
06511 06789* 06797* 06798* 06800* 06804 06805 06806
06807 06816 06817 06819 06820 06821 06823 06825
06830 06832 06842 06850 06851 06854 06855 06858
07454 07648 07650 07973* 08062* 08066* 08067* 08070*
08071* 08072* 08075* 08077* 08080* 08081 08084 08085
08089 08092 08095 08096 08097 08101 08105 08117
08118 08120 08122 08123 08124 08125 08127 08128
08274

SURGERY,GALLBLADDER
00115* 00844* 00846* 00853 00855 00860 00862 00873
00877 00896* 01676* 01677* 01679* 01702 01703 01704
01717 01718 02513 02514 02515 02518 02523 02525
02526 02527 02528 02533 02534 02800 02860 03281*
03295 03296 03299 03304 03309 03807 04085* 04095*
04131 04166* 04168* 04171* 04173* 04174* 04182 04186
04188 04283 04988 04989 04994 04995 05001 05006
05427 05890 06145 06149 06152 06157 06165 06167
06179 06186 06187 06190 06191 06211 06213 06214
06220 06221 06350 07468* 07470* 07471* 07472* 07497
07499 07500 07503 07509 07515 08826* 08827* 08829*
08832* 08835* 08842 08849 08859 08860 08872 08874
08881 08885 07500

SURGERY,GASTROINTESTINAL
SEE ALSO GASTROINTESTINAL TREATMENT
00523 00629* 00650 00673 00783 00883* 00891* 00901*
00901* 00904 00909 00910 00928 00957 00961 00976
00978 00996 01053 01099 01356* 01366 01767 01789
01790 01806 02178 02181 02543* 02551* 02552* 02600
02849 02916 02956 02986 02997 03324* 03325* 03338
03346 03382 03386 03393 03411 03695 03702 03807
03834 03892 03920* 03937 03951* 04196* 04213 04217
04238 04338* 04747 04783 05027* 05033* 05071 05086
05564 05647 05679 05695 05706 05792 05927 06235*
06265 06268 06269 06272 06308 06352 06368 06375
06387 06715* 06815 06823 06867* 06895 06900 06956
06984 07343 07591 07624 07644 07650 07693 07816
07971* 08161 08354 08512 08873 08895* 08959 08961
08965 08985 07610

SURGERY,LARGE INTESTINE
00207* 00525 00561* 00563* 00564* 00568 00569 00570
00572 00573 00574 00575 00576 00577 00579 00580
00587 00589 00590 00594 00595 00597 00598 00599
00602 00611 00614 00619 00620 00627* 00636 00637
00683* 00690* 00940 00950 00995 00998 01001 01367
01368 01445* 01447* 01451* 01458 01459 01465 01466
01471 01474 01478 01480 01486 01493* 01494* 01497*
01532 02165 02250* 02257 02261 02262 02265 02269
02270 02271 02273 02275 02284 02285 02291 02295
02296 02301 02541* 02775 02975 02984 03037 03061*
03062* 03063* 03066* 03070* 03076* 03078* 03079* 03080*
03081* 03082* 03083* 03084* 03092 03094 03098 03100
03102 03105 03107 03110 03112 03114 03122 03126
03127 03315* 03338 03388 03392 03393 03413 03436
03658 03729* 03731* 03760 03778 03951* 03953* 03954*
03969* 03971* 03972* 03974* 03985 03994 03995 03995
03998 04009 04013 04016 04017 04026 04028 04032
04034 04037 04049 04061 04375 04490* 04610 04758*
04762* 04769 04773 04778 04781 04783 04787 04799
04805 04810 04813 04815 04817* 05083 05088 05205
05399* 05498 05574 05632 05710* 05739* 05748 05749
05753 05757 05761 05766 05771 05774 05775 05777
05781 05782 05783 05799 05800 05801 05810 05821
05822 05836 05905* 06029 06257 06258 06269 06278
06334 06369 06395 06515 06851 06942* 07099* 07103*
07104* 07111 07113 07117 07120 07125 07133 07139
07146 07147 07155 07156 07161 07172 07648 07650
07713 07739 08124 08249* 08294 08310 08314 08431*
08433* 08434* 08435* 08442* 08444* 08448 08449 08451
08452 08453 08454 08457 08461 08462 08467 08470
08473 08482 08488 08491 08492 08493 08494 08495
08497 08501 08505 08506 08514 08515 08516 08522
08530 08533 08539 08543 08544 08545 08546 08552
08606 08898 08919
SURGERY,LIVER
00110* 00129* 00140* 00144 00145 00159 00243 00306
00677* 00680* 00681* 00684* 00685* 00686* 00700* 00715
00717 00718 00719 00720 00739 00742 00743 00747
00754 00765* 00905 01013* 01162 01266 01536* 01541*
01546* 01549* 01560 01565 01568 01573 01575 01601
01620 01621 01658 01678* 01920* 02340* 02348* 02349*
02365 02369 02371 02375 02383 02407 02412 02445
02447 02490 02556 02630 02727 03160* 03162* 03163*
03164* 03169* 03173 03174 03175 03197 03203 03216
03226 03229 03352 03556* 04079* 04081* 04094* 04096
04116 04119 04120 04124 04128 04283 04300 04434*
04438 04465 04533 04864* 04870* 04890 04891 04894
04895 04899 04907 04909 04921 04926 04962* 04964*
04972 04983* 05121 05330 05331 05332 05345 05346
05574 05911* 05932 05935 05953 05955 05956 05962
05964 05966 05968 05975 05977 06001 06002 06017
06042 06057 06069 06106 06120 06447 06560* 06644
06647 06682* 06696 07240* 07248* 07250* 07279 07308
07323 07338 07342 07344 07359 07447 07742 07804
07878* 07915 07942 07946 08205 08622* 08624* 08625*
08629* 08636* 08666 08699 08714 08717 08725 08727
08736 08816
SURGERY,MESENTERY
01751 02598 03352 03418 05624 07694 08523

SURGERY,PANCREAS
00062* 00098* 00463 00639* 00641* 00643* 00645* 00648
00648 00651 00652 00654 00657 00659 00665* 00667*
00670 01220 01503* 01504* 01505* 01506* 01507* 01512
01513 01526 01532 01699 01752 01767 01914 01915
02039 02306 02307 02308 02309 02311 02312 02313
02315 02316 02339 02522 02614 02693 03128* 03129*
03137 03139 03142 03143* 03352 03599* 04051* 04052*
04053* 04055 04067* 04069* 04269* 04301 04389* 04829*
04833 04840 04845 04847 04848 04858 05358 05377*
05574 05658 05847* 05856 05863 05865 05866 05869
05899 05901 07194* 07196* 07203 07205 07210 07215
08560* 08562* 08568 08575 08576 08580 08582 08586
08588 08593 08614
SURGERY,PANCREATITIS
00667* 00676 01520 02331 02332 02333 02335 02336
03150 04070* 04071 04085* 04856 05866 05887 05888
05893 06165 07225 08563* 08589 08596* 08599* 08601*
08610
SURGERY,PEPTIC ULCER
00277 00334 00356* 00415 00417 00431* 00440* 00468*
00469* 00470* 00474* 00475* 00479* 00480* 00484 00492
00495 00498 00500 00501 00502 00503 00505 00513
00514 00516 00573 01069* 01255 01308* 01317* 01339
01340 01388* 01388* 01396* 01398* 01399* 01402 01403
01404 01408 01414 01417 01419 01420 01421 01422
01767 02103* 02138 02139 02185* 02186* 02188* 02190*
02192* 02193* 02197* 02198* 02199* 02201 02208 02209
02214 02216 02217 02219 02220 02221 02223 02226
02552* 02584 02762* 02879 02880 02901* 02924 02925
02926 02941 03003* 03006* 03007* 03017 03021 03022
03024 03027 03402 03453* 03644 03797* 03809 03810
03815 03850 03892 03915* 03919* 03920* 03921* 03928*
03933 03948 03950 04631* 04646 04650 04709* 04713*
04714* 04718 04723 04725 04726 05029* 05467* 05547
05582 05593 05660* 05664* 05666* 05667* 05677 05682
05685 05687 05690 06516 06998* 07002* 07003* 07004*
07005* 07007* 07008* 07009* 07017 07019 07028 07030
07031 07033 07034 07036 07051 07822 08140* 08208
08209 08331* 08334* 08343 08346 08354 08373 08385
08386 08394 08395 08399
SURGERY,PORTAL HYPERTENSION
02350* 05924* 06041 06917 08657
SURGERY,RECTUM
00567* 00568 00572 00577 00586 00589 00594 00620
01481 01483 01494* 01497* 02053 02258 02260 02268
02288 02292 02293 03061* 03073* 03079* 03101 03106
03108 03119* 03122 03315* 03436 03969* 03972* 03976*
04000 04024 04038 04706 04764* 04774 04786 04788
04789 04801 04802 04803 04816 05088 05619 05668*
05749 05769 05786 05799 05808 05809 05821 05828
05831 06265 06350 07148 07159 08460 08466 08488
08491 08498 08504 08506 08536
SURGERY,SALIVARY GLAND
03350 03414 06312 06384 08241
SURGERY,SMALL INTESTINE
00074* 00079* 00101* 00361* 00417 00429* 00430* 00434*
00436* 00437* 00442 00443 00446 00454 00456 00460
00461 00465 00466 00516 00519* 00521 00529* 00639*
00646 00916 00937 00940 00947 00950 00953 00995
00998 01000 01001 01002 01318* 01352* 01354* 01356*
01357* 01358 01361 01363 01364 01367 01368 01371
01372 01373 01374 01376 01377 01381 01385 01386
01425 01426* 01431 01532 01722* 01807 02102* 02103*
02116 02142 02145* 02146* 02150* 02153 02154 02155
02157 02161 02163 02164 02165 02166 02167 02168
02169 02170 02172 02173 02174 02175 02177 02179
02180 02182 02183 02184 02185* 02229 02230 02234
02511 02541* 02928 02962* 02963* 02964* 02965 02968
02969 02974 02975 02977 02978 02979 02980 02981
02984 02994 02995 02996 03036* 03051 03085 03115
03302 03315* 03319* 03325* 03338 03344 03388 03392
03413 03426 03436 03512* 03831 03867* 03874 03876
03877 03880 03881 03887 03892 03893 03895 03897
03906 03938 03951* 04061 04209* 04461 04492 04513
04674* 04677 04683 04686 04693 04697 04699 04701
04702 04705 04731 04743* 04745 04747 04988 05083
05192* 05205 05389 05488 05548 05589 05595* 05597*
05604* 05609 05611 05612 05613 05614 05615 05619
05621 05624 05628 05631 05632 05637 05640 05646
05648 05653 05654 05655 05656 05710* 05711 05716
05717 06036 06187 06188 06217 06258 06278 06334
06364 06369 06386 06515 06705 06881 06885 06941*
06942* 06943* 06946* 06949 06957 06961 06965 06968
06971 06974 06987 06988 06989 06991 07055* 07134
07153 07525* 07536* 07636 07651 07713 07719* 07739
08076* 08101 08247* 08249* 08250* 08253* 08256* 08257*
08263 08271 08274 08276 08278 08284 08292 08294
08298 08301 08305 08308 08310 08314 08322 08333*
08365 08369 08404* 08433* 08452 08606 08898
SURGERY,STOMACH
SEE ALSO GASTRECTOMY
00308* 00309* 00330 00345 00353* 00354* 00355* 00361*
00363* 00372 00380 00381 00382 00383 00384 00391
00398 00405 00408 00414 00416 00417 00420 00422
00427 00469* 00470* 00479* 00480* 00497 00498 00500
SURGERY,STOMACH
CONTINUED
00513 00514 00516 00525 00656 00673 00953 01100
01254 01272* 01279* 01287 01294 01308* 01310* 01314*
01316* 01317* 01324 01329 01334 01340 01391* 01396*
01398* 01403 01404 01408 01417 01419 01422 01700
01752 01760 01880* 02100* 02102* 02104* 02105* 02107*
02110 02112 02115 02123 02125 02130 02136 02137
02138 02139 02141 02142 02182 02183 02185* 02186*
02197* 02198* 02201 02214 02217 02218 02219 02220
02221 02222 02224 02227 02528 02584 02616 02762*
02779 02872 02873 02900* 02901* 02903* 02909* 02916
02921 02924 02925 02928 02929 02930 02932 02933
02934 02936 02940 02941 02943 02947 02949 02956
02979 02995 03008* 03016* 03017 03018 03026 03027
03032 03123 03134* 03139 03292 03301 03347 03396
03402 03495 03512* 03525 03661 03757 03781 03796*
03797* 03798* 03800* 03809 03811 03815 03816 03823
03824 03827 03829 03831 03846 03848 03849 03850
03853 03858 03859 03861 03862 03892 03921* 03928*
03933 03938 03944 03948 03949 03950 04034 04062
04211 04238 04364* 04492 04513 04598* 04624* 04626*
04628* 04631* 04632* 04633 04635 04636 04637 04640
04641 04642 04645 04646 04647 04649 04650 04651
04653 04654 04665 04667 04669 04705 04713* 04714*
04731 04733 04741 04842 04852* 04859 05031* 05088
05186* 05202 05246 05386 05427 05455 05456 05486
05515* 05517* 05530 05532 05533 05539 05544 05546
05548 05549 05551 05565 05566 05571 05572 05573
05574 05577 05579 05581 05582 05584 05595* 05656
05667* 05669* 05675 05676 05678 05683 05699 05708
05877 05878 05879 05880 05883* 06160 06176 06244
06274 06388 06542 06790* 06863* 06867* 06871 06880
06885 06891 06892 06893 06901 06902 06904 06908
06911 06912 06914 06916 06923 06924 06937 07003*
07011* 07016 07018 07020 07032 07536* 07648 07651
07812* 07822 08070* 08141* 08149 08151 08156 08162
08167 08169 08174 08184 08188 08192 08193 08199
08203 08204 08205 08208 08215 08219 08221 08223
08231 08233 08235 08238 08243 08254* 08327* 08328*
08332* 08358 08386 08400 08583 08606 08895* 08905
SURGERY,ULCER
03925* 03944 03945 03946 03947 03949 04712* 05674
06311 06937 07018 07022 07046 07050 08345 08364
08365 08366 08370 08372 08377 08390
SURGERY,ULCERATIVE COLITIS
00634 00636 01493* 01494* 01497* 01804 02301 03117*
03119* 03122 03123 03127 04041* 04049 04706 04708*
04765* 04826 05832* 05838 05843 06942* 06987 08550
08552 08554 08558
SURGERY,VASCULAR
02384 02385 02409 02471* 03324* 03381 03409 03417
03810 04774 05566 06252 06705
SURGERY,VOLVULUS
01363 01459 02959* 03064* 04002 05613 05802 08447*
SURGEY,PEPTIC ULCER
06367
SURGICAL APPARATUS
00437* 00679* 01747 02271 05498 06350 06395 06813
07610 08149 08290 08484
SURGICAL APPARATUS AND TECHNIQUES
04269* 04673* 04739 06335 05807 08204
02276 04079* 06265

SURGICAL TECHNIQUES,EXPERIMENTAL
00386 00563* 00677* 01331 01352* 01354* 01722* 02371
02541* 02552* 03128* 03129* 03315* 03599* 05204 05357
05385 05739* 06197 06558 06571* 06796* 06798* 07838*
07915
SURGICAL TREATMENT OF BLEEDING
00347 00459 00502 00677* 00755 00822* 01291 01369
01385 01396* 01421 01733* 02066* 02077 02115 02199*
02209 02215 02222 02339 02350* 02373 02445 02471*
02478 02530 02584 02885 02981 02986 03082* 03142
03226 03417 03836 03919* 04203* 04607 04672 04680
04681 04688 04714* 04722 04965* 04967 05029* 05578
05831 05924* 06124 06235* 06369 06844 06997* 07031
07103* 07481 07993* 08221 08279 08311 08392 08504
08747 09017
SURGICAL TREATMENT OF PANCREATITIS
04854*
SURGICAL TREATMENT OF ULCERS
08389

SURVIVAL RATES,CANCER
00354* 00605 00644* 00683* 01320* 01445* 01448* 01480
01484 01490 01503* 01804 02062* 02074 02081 02082
02100* 02160 02269 02270 02281 02288 02314 02369
02498* 02871* 02883 02896 02903* 02909* 02936 02940

SURVIVAL RATES,CANCER
CONTINUED
02948 03077* 03197 03753 03798* 03800* 03817 03823
03969* 03971* 04036 04052* 04058 04198* 04605 04643
04654 04669 04869* 04921 05022* 05088 05514* 05522*
05560 05574 05658 05744* 05914* 06797* 07101* 07102*
07196* 07248* 07520* 08075* 08106 08142* 08157 08166
08218 08434* 08500 08510 08835* 08963 05567 06849
07124 07355 00823*

SYNDROME,BLIND LOOP
03059
SYNDROME,BUDD-CHIARI
00713 01291 02854 03637 04252 04533 04915 05906*
05970 07235* 07303 07341 07447
SYNDROME,CARCINOID
SEE ALSO CARCINOIDS
SEE ALSO SEROTONIN
00601 00609 00622 00942 01382 01735* 01736* 02524
02583 02921 02958* 03403 04619 05610 05638 05651
05760 05851 06168 06315 08453
SYNDROME,CELIAC
07064*
SYNDROME,CRIGLER-NAJJAR
01940 07236*
SYNDROME,CUSHINGS
01169 01514
SYNDROME,DUBIN-JOHNSON
00565* 01572 03194 03204 03706 05130 06048 08620*
08628* 08670 08672
SYNDROME,DUMPING
05589 08101 08203 08212 08347 08390
SYNDROME,GARDNERS
01457

SYNDROME,GASTRECTOMY-INDUCED AFFERENT LOOP
00360* 00368* 00425 00428 00440* 04655 05688 07812*
08138*
SYNDROME,GASTRECTOMY-INDUCED DUMPING
00308* 00356* 00360* 00368* 00386 00428 00431* 00440*
00468* 00474* 00480* 00898* 01314* 01318* 01328 01338
01375 01399* 02102* 02104* 02138 02680* 02762* 02908*
03797* 03844 03924* 04199* 04543* 04673* 05545 05548
05588 05656 05677 06869* 06885 07812* 08134* 08138*
08255* 07030
SYNDROME,MALLORY-WEISS
04542* 05484 06810 06841 08274
SYNDROME,PEUTZ-JEGHERS
00452 00462 01359 01457 02180 03911 05798 06955
SYNDROME,ROTORS
05127
SYNDROME,SJOGRENS
03055 03335
SYNDROME,ZIEVES
00671 01618 02481 02493 05984 06094* 07456

SYNDROME,ZOLLINGER-ELLISON
00532 00911 00942 00949 00953 01402 01742 01752
01760 01766 01767 01774 01775 02614 03378 03402
03439 03518* 04207* 04229 04849 05063 05242 05677
05853 05858 05864 05870 06244 07526* 07644 08339
08577 08905 08983 05860 08936
SYPHILIS
00606

TECHNIQUE,STOMACH SECRETION STUDY
06530*

THERAPY,DIETETIC
00377 00446 00528* 00551 00737 00745 00792* 00893*
00932 01313* 01409 01412 01431 01438 01440 01441
01613 01646* 01674 01743 01744 01771 01784 02118
02154 02210 02238* 02246 02249 02250 02337 02364
02378 02386 02395 02567 02569 02570 02576 02577
02810 03049 03272 03280 03386 03758 03980 04228
04753 04822 05036 05373 05671 05710* 06046 06328
08265 08557 08643* 08867
THERAPY,MUD
00418
THIAMINE
04999
THIAMINE ABSORPTION
00040

THROMBOSIS
00273 00756 00839 00901* 01467 01487 01587 01591
01595 01709 01781 02282 02401 03196 03293 03324*
04237 06252 06977 07583

THROMBOSIS,HEPATIC VEIN
SEE BUDD-CHIARI SYNDROME
THYMUS GLAND
00894*
THYROID GLAND
00942 01125* 01132* 01141* 01754 01974 02607 02695*
03210 03839 04368 05243 05294* 05306 06052* 07870
08144 08193 02122

TISSUE ADHESIVES
01722*
TOLERANCE TESTS
00231* 01510
TOLERANCE TESTS IN MALABSORPTION DIAGNOSIS
00540 02024* 04199* 07061* 07067*

TOXIC EFFECTS OF RADIATION
SEE ALSO TOXIC EFFECTS ON ABSORPTION
SEE ALSO TOXIC EFFECTS ON BILIARY TRACT
SEE ALSO TOXIC EFFECTS ON ESOPHAGUS
SEE ALSO TOXIC EFFECTS ON GASTROINTESTINAL TRACT
SEE ALSO TOXIC EFFECTS ON LARGE INTESTINE
SEE ALSO TOXIC EFFECTS ON LIVER
SEE ALSO TOXIC EFFECTS ON PANCREAS
SEE ALSO TOXIC EFFECTS ON RECTUM
SEE ALSO TOXIC EFFECTS ON SALIVARY GLANDS
SEE ALSO TOXIC EFFECTS ON SMALL INTESTINE
SEE ALSO TOXIC EFFECTS ON STOMACH
00159 00298 00433* 00655 00771* 01077 01167 01173
01344 01726* 01812 01984 02587 02664 03480* 03491*
03576 03902 04287 04480 04777 04787 04797 05632
05725 05826 06045 06496 06666* 07379 07817 07905
07972* 07987 08143* 08972 07520*
TOXIC EFFECTS OF RADIOLOGY
07908
TOXIC EFFECTS OF SMALL INTESTINE
01864*
TOXIC EFFECTS ON ABSORPTION
01726* 07781*
TOXIC EFFECTS ON BILIARY TRACT
01984 04432* 06147
TOXIC EFFECTS ON CIRCULATION
03223
TOXIC EFFECTS ON ESOPHAGUS
00336 02862* 02886 03396 03781 04608 05502 05503
06809 06868* 06895 08100 06823
TOXIC EFFECTS ON GASTROINTESTINAL TRACT
00063* 00506 00979 01723* 01726* 01772 01786 02223
02664 02915 03323* 03348 03398 03400 03603* 03657
04254 05045 05172 05558 05569 06293 06298 06302
06342 06346 06372 06392 06450 06680 06702 06811
07562 07619 07708 08335* 08750 08904 08941
TOXIC EFFECTS ON LARGE INTESTINE
00598 00627* 01493* 01776 02299 02544* 02993 03491*
04540 04797 04827 05835 06237* 08445*
TOXIC EFFECTS ON LIVER
00109* 00113* 00118* 00121* 00124* 00126* 00131* 00146
00159 00172 00691* 00695* 00700* 00701* 00704* 00712
00761 00766* 00768* 00769* 00770* 00771* 00773* 00774*
00775* 00776* 00777* 00779* 00780 00781 00782 00785
00786 00788 00789 00824* 00829* 00833 00836 00915
01121* 01167 01173 01218* 01226 01534* 01541* 01606*
01608 01609 01611 01612 01613 01615 01616 01619
01624 01700 01768 01772 01924* 01926* 01937 01944
01950 01951 01960 01971 01974 02037 02376 02417*
02419* 02420* 02423 02424 02425 02427 02428 02429
02431 02434 02436 02438 02444 02446 02448 02449
02451 02476* 02494 02601 02710* 02711 02714 02717
02719 02722 02734 02793 02805 03165* 03205 03207
03211 03215 03218* 03222 03223 03224 03227 03228
03230 03231 03246 03455* 03563 03567 03578 03579
03580 03591 03668 03690 03803 04125 04129 04132
04143 04270* 04271* 04291 04318* 04401* 04410* 04433*
04453 04454 04455 04496* 04913 04929 04933 04935
04940 05132 05209 05279* 05294* 05299* 05306 05308
05311 05312 05349 06034 06050* 06051* 06052* 06058
06067 06117 06405* 06419 06420 06425 06426 06578*
06610 06645 06646 06651 07232* 07366* 07367* 07374
07379 07381 07382 07383 07385 07387 07388 07548
07721* 07747 07754 07758 07762 07778* 07880* 07889*
07891* 07897* 07905 07923 07930 07934 08729* 08733*
08738 08739 08741 08742 08743 08744 08746 08748
08749 08750 08811 08797
TOXIC EFFECTS ON PANCREAS
00019 00655 01112* 01772 02319* 02544* 05900 06398*
07754
TOXIC EFFECTS ON RECTUM
05826

TOXIC EFFECTS ON SALIVARY GLANDS
00298
TOXIC EFFECTS ON SMALL INTESTINE
00432* 00433* 00435* 01037* 01350* 01423* 01776 01987*
02144* 02223 02544* 02993 03601* 03781 03868* 03902
04540 04675* 06237* 06450 06666* 07767 07781* 07905
07972*
TOXIC EFFECTS ON STOMACH
00358* 01305* 01342 01344 01772 01875* 01877* 01905
02099* 02106* 02223 02544* 02928 02954 03396 03510*
03520 03781 03929 04636 05535 06237* 06823 06868*
06894 06895 08242
TOXIC HEPATITIS
SEE ALSO TOXIC EFFECTS ON LIVER
04496*
TOXIC PANCREATITIS
00019
TOXINS OF MICROORGANISMS,METABOLIC
01749 01762 01793 01794 01796 01926* 02603 04241
07255* 07636
TOXINS,BACTERIAL
03384 04214
TOXINS,CHEMICAL
SEE ALSO TOXIC EFFECTS ON BILIARY TRACT
SEE ALSO TOXIC EFFECTS ON ESOPHAGUS
SEE ALSO TOXIC EFFECTS ON GASTROINTESTINAL TRACT
SEE ALSO TOXIC EFFECTS ON LARGE INTESTINE
SEE ALSO TOXIC EFFECTS ON LIVER
SEE ALSO TOXIC EFFECTS ON PANCREAS
SEE ALSO TOXIC EFFECTS ON RECTUM
SEE ALSO TOXIC EFFECTS ON SALIVARY GLANDS
SEE ALSO TOXIC EFFECTS ON SMALL INTESTINE
SEE ALSO TOXIC EFFECTS ON STOMACH
00146 00159 00172 00769* 00779* 00788 00789 00979
01121* 01606* 01608 01613 01615 01905 02424 02427
02428 02431 02446 02448 02449 02714 02734 03165*
03223 03231 03579 03580 03668 04129 04453 04636
04935 04940 05312 05503 06293 06346 06809 06823
06894 06895 07378 07379 07387 07388 07747 08100
08242 08742
TRACE ELEMENT AND MINERAL ABSORPTION
00037 00040 00044 00465 00542 00887* 01047* 01842*
01843* 01849* 01878* 02255* 02405 02649 02651 02689
02788 02830 02942 02943 03040* 03137 03183 03208
03480* 03493 03498* 03598 03959* 03965 04100 04106
04117 04218 04319* 04333 04868* 05580 05730 06467*
06492 06740 07783* 08023 08637*
TRACE ELEMENT AND MINERAL DEFICIENCIES
03415
TRACE ELEMENT AND MINERAL EXCRETION
00707* 04333
TRACE ELEMENT AND MINERAL METABOLISM
00688* 01047* 01267 01338 06099* 06924 07783* 08776
TRACE ELEMENT AND MINERAL METABOLISM,LIVER 08414 01931
05279* 06405*

TRACE ELEMENT METABOLISM,LIVER
00928 00997 01662 01957 01962 01980 02411 04286
04429* 04439 04868* 04886 05115* 06281 06411* 06528
07267 07304 07877* 08637*
TRACE ELEMENT SECRETION,STOMACH
01096*

TRACER STUDIES
00010* 00014* 00025* 00026* 00037 00041 00063* 00064*
00095* 00098* 00118* 00121* 00127* 00142 00153 00157
00160 00163 00173 00175 00182* 00193 00197* 00205*
00223* 00226* 00301 00436* 00466 00542 00564* 00657
00658 00706* 00733 00821* 00884* 01007* 01022* 01038*
01041* 01042* 01047* 01048* 01050* 01053 01054 01066
01077 01089* 01102 01112* 01118* 01123* 01125* 01128*
01130* 01132* 01133* 01135* 01137* 01146* 01147* 01150*
01153 01169 01170 01174 01177* 01178* 01181* 01226
01231 01307* 01373 01374 01427* 01538* 01596 01648*
01713 01762 01793 01826 01840* 01851 01852 01854
01868* 01891* 01899 01917 01923* 01952 01959 01968
01970 01975 01981 01994 02006* 02021* 02029* 02039
02043 02255* 02350* 02381 02586 02603 02675* 02740*
02743* 02777 02805 02809 02823 02830 02835 02853
02855 02861 02887 02897 03014* 03028 03210 03267*
03460* 03469* 03479* 03480* 03481* 03489* 03491* 03532*
03533* 03539* 03578 03584 03617* 03635 03671 03707
03708 03722 03752 03959* 03960* 04302 04311* 04315*
04320* 04324* 04325 04334 04405* 04419* 04447 04451
04456 04471 04474 04485* 04491* 04511* 04512* 04520
04546* 04549* 04552* 04553* 04559 04560 04574 04581
04792 04966 05159* 05165* 05166* 05171 05179 05185
05192* 05197* 05258* 05262* 05263* 05286* 05315 05335
05359* 05364* 05375 05390 05402* 05427 05428 05443
05454 05455 05602* 05695 05916* 05938 06050* 06074*
06150 06232* 06404* 06405* 06422 06424 06426 06432
06465* 06468* 06469* 06471* 06476* 06479* 06480* 06487
06490 06491 06492 06495 06500 06509* 06569* 06573*
06574* 06583* 06585* 06593* 06598* 06600* 06608 06614

TRACER STUDIES
CONTINUED
06615 06635 06666* 06675 06682* 06688* 06711* 06714*
06792* 07068* 07200 07245* 07429* 07730* 07772 07775*
07777* 07778* 07782* 07783* 07785* 07786* 07793 07794
07797 07801 07875 07881* 07888* 07962* 07990* 07998*
07999* 08013 08019 08023 08025 08144 08548* 08618*
08637* 08807
TRANSPLANTATION
SEE ALSO IMMUNOLOGY
00989 06338
TRANSPLANTATION,GASTROINTESTINAL
04604
TRANSPLANTATION,LARGE INTESTINE
00348 00349 02064* 02165 02876 03396 03762 04610
08437*
TRANSPLANTATION,LIVER
00139* 00681* 00686* 00687* 00706* 00715 00747 00753
01166 01549* 01565 01575 01584 01585 01586 01592
01593 01594 01595 02340* 02348* 02353* 02370 02407
02557 03159* 03162* 03167* 03182 03212 03458* 04321*
04428* 04480 04864* 04911 05096* 05331 05345 05346
05347 05348 05357 05955 05962 06016 06017 06069
06447 06568* 06570* 06586* 06594* 06612 07289 07727*
07896* 07915 07978 08724
TRANSPLANTATION,PANCREAS
01504* 01507* 01510 02316 03129* 03135 04269* 05377*
05856
TRANSPLANTATION,SMALL INTESTINE
00349 00465 00466 01352* 01353* 01370 01510 02143*
02153 02165 03831 03876 04492 05204 05627 05656
TRANSPLANTATION,STOMACH
00345 00349 07739

TRANSPORT,ION
00024* 00029* 00030* 00035* 00039 00042 00043 00068*
00070* 00476* 00695* 00955 01043* 01045* 01048* 01049*
01057 01065 01124* 01126* 01154 01165 01186 01342
01572 01656 01828 01830 01840* 01844* 01846* 01855
01868* 01878* 01896* 01898* 01931 02106* 02130 02388
02574 02578 02644 02646 02647 02667 02686 02688
02746 02912* 03362 03502 04493 04518 04830* 05190*
05230* 05719* 06413* 06479* 07776* 07780* 07781* 07808
TRAUMA IN CHILDREN,ABDOMEN 01856
00983 01359 03888 05066 05861 05901 06316
TRAUMA,ABDOMEN
00228* 00352 00645* 00648 00885* 00936 00956 00983
00986 01246 01271 01281 01361 01376 01383 01557
01617 01702 01812 02032* 02159 02309 02543* 02549*
02555 02590 02766* 02859 02992 03142 03336 03395
03411 03419 03430 03889 04026 04242 04257 04578
04794 05047 05394* 05461 05868 06189 06338 06980
07291 07533* 07538 08049 08304 08570 08582 08747
08909 08959
TRAUMA,BILIARY TRACT
00363* 00870 01025* 02503* 02512 05018 06025 06693
07301 07467* 08136*
TRAUMA,DUODENUM
01352* 01376 04704 05622 05688
TRAUMA,ESOPHAGUS
00311* 00324 00329 00336 00343 01278* 01281 01284
02064* 02078 02088 02089 02212 02863* 02888 03759
03782 04604 04608 04612 04613 05468* 05490 05509
06803 06868* 08105 08130
TRAUMA,GALLBLADDER
05018
TRAUMA,GASTROINTESTINAL
00956 05647 06352 06867*
TRAUMA,LARGE INTESTINE
00570 00620 04024 04026 05799 07144
TRAUMA,LIVER
00680* 00725 00765* 00783 00956 01246 01576 01620
01621 02445 02447 03160* 03164* 03229 04079* 04128
04794 04921 04925 05018 05953 05966 06588* 06619
07250* 07538 07746 07939 08625* 08636*
TRAUMA,PANCREAS
00645* 00648 00659 01513 02306 02311 03142 04865
04846 05901 07203 07219 08582
TRAUMA,RECTUM
00620 04000 05799 05828
TRAUMA,SMALL INTESTINE
00429* 01376 01383 02156 02158 02169 04687 04794
05047 07972* 08312
TRAUMA,STOMACH
06867* 06868*

TRIGLYCERIDE ABSORPTION
00036 00157 00191 00274 00893* 01046* 01056 01851
02648 02747 02801 03962* 04355* 05166* 05170 05198*
06045 06256 06485 06538 07065* 07089 07625 07891*
TROPICAL SPRUE
00530* 00540 00544 00555 00556 00557 00559 01427*
03058 03059 03899 03961* 03964 05446 05721* 06349
07082 07092 08413*

TRYPSIN
00185* 00661* 01816* 01909* 01986* 04388* 04390* 04398
05260* 05263* 05889 07211 07968 08600*
TRYPSIN INHIBITION
00664* 00668* 01469 01508 01522 01581 01910* 02320*
03597* 04072 04158
TRYPSIN INHIBITION,PANCREAS
04386* 04397 06554* 07223 08607 01906*

TRYPSIN SECRETION,PANCREAS
02303* 02310 02692* 03138 03527* 03529* 04391 04397
04842 04944* 05260* 05263* 05877 05879 05896
TUBERCULOSIS
00256 00523 00557 00612 00976 01343 01382 01616
02465 03048 03211 03218* 03260* 03322* 03705 03873
03980 04018 04131 04132 04206* 04213 04370 04934
05050 05483 05578 05710* 06211 06275 06362 06882
06904 07632 08134* 08214 08246* 08288 08655 08984
TUBERCULOSIS,LIVER
06027
TUMORS,PANCREAS
08579
TYPHOID FEVER
SEE ALSO SALMONELLOSIS
00889* 00920 01734* 01739 01759 03340 03384 03404
04245 05064 06361 06369 06391 07703 08907
TYPHOID FEVER CARRIER STATE
03334 06151
TYPHOID FEVER COMPLICATIONS
00889* 03867* 06233*
TYPHOID FEVER DIAGNOSIS
03334 03340 03648 03697
TYPHOID FEVER EPIDEMIOLOGY
02550* 03867* 07529* 08998 09003
TYPHOID FEVER IMMUNOLOGY
02603 03380 03422 06238*
TYPHOID FEVER IN CHILDREN
03334 03340 03422
TYPHOID FEVER PATHOLOGY
03340
TYPHOID FEVER TREATMENT
03337 03340 03380 03422 05053 07522* 07654

ULCER COMPLICATIONS,PEPTIC
00277 00472* 00475* 00479* 00486 00488 00491 00495
00502 00505 00508 00509 00515 00933 01297 01319*
01378 01394* 01396* 01399* 01407 01408 01413 01414
01419 01478 01730* 01733* 01782 02098* 02101* 02115
02186* 02190* 02198* 02199* 02203 02209 02213 02214
02215 02219 02511 02584 02585 02614 03012* 03016*
03023 03027 03028 03032 03797* 03919* 03926* 03931
03937 03947 03950 04710* 04714* 04717 04722 04725
04726 04735 04736 05419 05592 05668* 05684 05694
05698 05703 06765 06920 06930 06998* 07000* 07004*
07005* 07007* 07010* 07016 07026 07031 07034 07038
07045 07220 07637 07716 08289 08331* 08341 08343
08347 08348 08367 08380 08381 08389 08392 08403
08603 08865 08893* 08900
ULCER DIAGNOSIS
05681 07022
ULCER DIAGNOSIS,PEPTIC
00085* 00227* 00237* 00485 00494 00502 00511 01193*
01194* 01198* 01202* 01216* 01249 01262 01276* 01308*
01400 01412 01414 01420 01894* 02026* 02031* 02033*
02035* 02047 02101* 02202 02216 02220 02599 02841
03004* 03031 03930 03931 03941 04544* 04556* 05029*
05398* 05401* 05406* 05416 05451 05505 05527 05704
07012* 08326* 08330* 08339 08353 08865
ULCER DIAGNOSIS,RADIOLOGY IN PEPTIC
00198* 00277 00475* 00495 01251 01422 02020* 02051
03865* 04571 05419 05451 07001* 07012* 08960
ULCER EPIDEMIOLOGY
08335* 08368
ULCER EPIDEMIOLOGY,PEPTIC
00490 00508 00662* 00751 00960 01304* 01387* 01410
01882* 02195* 02196* 02202 02207 03029 03922* 04362*
04710* 05682 06543 07010* 07014* 07033 08336* 08402
ULCER ETIOLOGY
00377 02114 03011* 04707* 05242 05674 05724
ULCER ETIOLOGY,PEPTIC
00072* 00081* 00083* 00099* 00438* 00470* 00474* 00476*
00478* 00482* 00483 00486 00489 00490 00493 00496
00497 00500 00505 00506 00507 00662* 00911 01089*
01090* 01305* 01319* 01336 01387* 01388* 01388* 01389*
01390* 01392* 01397* 01400 01401 01406 01410 01411
01414 01415 01416 01420 01724* 01742 01752 01766
01774 02187* 02189* 02195* 02196* 02203 02204 02206
02207 02211 02214 02216 02227 03002* 03008* 03010*
03019 03029 03033 03439 03922* 03929 03931 03940
03942 03943 04229 04716* 04720 04721 04724 05244
05661* 05689 05701 06996* 07013* 07023 07033 07040
07051 07053 07394* 07566 07838* 08326* 08402 08893*
08964
ULCER HISTOLOGY,PEPTIC
02187*
ULCER IMMUNOLOGY,PEPTIC
01304*
ULCER PATHOLOGY
02114 03466* 08366
ULCER PATHOLOGY,PEPTIC
00369* 01406 01414 01416 01422 02203 02204 02227
02937 03019 03402 03931 04720 05661* 05692 06996*
07019 07023 07033 08385
ULCER PERFORATION
08291 08517 09014
ULCER PERFORATION,PEPTIC
00342 00479* 00491 00502 00505 00508 00509 01230
01396* 01408 01414 01419 01473 02186* 02190* 02198*
02199* 02213 02214 02219 03011* 03016* 03027 03031
03032 03923* 03947 03950 04710* 04735 04741 05419
05505 05592 05660* 05667* 05673 05684 05694 05698
05703 05862 06920 07002* 07005* 07016 07045 07220
08330* 08331* 08341 08343 08348 08367 08373 08381
08401
ULCER PROPHYLAXIS,PEPTIC
02195*
ULCER RADIOLOGY,PEPTIC
02841
ULCER SECRETION,PEPTIC
01882* 04354*
ULCER SURGERY
03925* 03944 03945 03946 03947 03949 04712* 05674
06311 06937 07018 07022 07046 07050 08345 08364
08365 08366 08370 08372 08377 08390
ULCER SURGERY,PEPTIC
00277 00334 00356* 00415 00417 00431* 00440* 00468*
00469* 00470* 00474* 00475* 00479* 00480* 00484 00492
00495 00498 00500 00501 00502 00503 00505 00513
00514 00516 00573 01069* 01255 01308* 01317* 01339
01340 01388* 01388* 01396* 01398* 01399* 01402 01403
01404 01408 01414 01417 01419 01420 01421 01422
01767 02103* 02138 02139 02185* 02186* 02188* 02190*
02192* 02193* 02197* 02198* 02199* 02201 02208 02209
02214 02216 02217 02219 02220 02221 02223 02226
02552* 02584 02762* 02879 02880 02901* 02924 02925
02926 02941 03003* 03006* 03007* 03017 03021 03022
03024 03027 03402 03453* 03644 03797* 03809 03810
03815 03850 03892 03915* 03919* 03920* 03921* 03928*
03933 03948 03950 04631* 04646 04650 04709* 04713*
04714* 04718 04723 04725 04726 05029* 05467* 05547
05582 05593 05660* 05664* 05666* 05667* 05677 05682
05685 05687 05690 06516 06998* 07002* 07003* 07004*
07005* 07007* 07008* 07009* 07017 07019 07028 07030
07031 07033 07034 07036 07051 07822 08140* 08208
08209 08331* 08334* 08343 08346 08354 08373 08385
08386 08394 08395 08399 06367

ULCER TREATMENT
00377 03304 03915* 03932 03938 03944 03945 03946
03947 03948 03949 04712* 05686 05699 05702 06311
06937 07022 08340 08355 08358 08359 08361 08372
09022
ULCER TREATMENT,DUODENUM
03923*
ULCER TREATMENT,GASTRIC
03925*
ULCER TREATMENT,PEPTIC
00082* 00107 00402 00418 00470* 00471* 00473* 00476*
00477* 00481* 00482* 00487 00492 00498 00500 00505
00510 00512 00513 00515 00518 00953 00977 01003
01280* 01340 01389* 01391* 01393* 01394* 01395* 01400
01401 01402 01406 01408 01409 01412 01414 01418
01419 01420 01421 02118 02125 02139 02185* 02197*
02198* 02199* 02202 02205 02207 02210 02214 02219
02220 02226 02227 02604 02605 02899* 02998* 02999*
03000* 03001* 03003* 03006* 03007* 03008* 03012* 03017
03024 03025 03365 03718 03794* 03815 03832 03927*
03933 03934 03935 03936 03939 03940 03941 03950
04646 04711* 04718 04723 05029* 05243 05419 05490
05547 05672 05673 05678 05693 05697 05709 06387
06998* 07000* 07001* 07003* 07011* 07017 07019 07024
07030 07031 07033 07038 07045 07051 07053 07054
08221 08339 08346 08374 08394 08395 08401 08865
ULCER,BLEEDING PEPTIC
07004* 07005* 07010*

ULCER,DUODENUM
05467* 05660* 05667* 05708 06430 07000* 07009* 07010*
07012* 07018 08337* 08338* 05662* 07008*
ULCER,ENZYME TREATMENT OF
05319
ULCER,GASTRECTOMY-INDUCED RECURRENT
00360* 00493 00498 00507 00516 01318* 01339 01391*
01398* 01399* 01766 02216 02111 03007* 03943

ULCER,STEROID
06537*
ULCERATIVE COLITIS
00445 00522 00975 00987 01452* 01453* 01484 01486
02006* 03122 03124 03126 03403 03952* 03955 03985
04023 04039 04047 04120 04252 04742* 04818* 05073
05089* 05393* 05429 05710* 05713 05715 05769 05832*
05833* 05834 07098* 07173 07189 07192 08547* 08559
08988
ULCERATIVE COLITIS COMPLICATIONS
00598 00632 00637 00948 01500 01804 02297* 02300
03120* 03123 03127 03445* 04041* 04050 04708* 04818*
05754 05777 05832* 05837 05838 06942* 06987 07185
08027 08553
ULCERATIVE COLITIS DIAGNOSIS
00224* 00293 00630* 00632 00633 01476 01492* 01494*
01501 01804 02046 02254* 02298* 02300 03120* 04048
04050 04817* 05747 05759 05800 05835 05837 05839
05841
ULCERATIVE COLITIS DIAGNOSIS,RADIOLOGY IN
00203* 00635 04045 05846
ULCERATIVE COLITIS EPIDEMIOLOGY
01495* 01496* 01501 01804 02297* 02298* 04042* 04044*
04828
ULCERATIVE COLITIS ETIOLOGY
00594 00630* 00631 00638 01491* 01495* 01496* 01499
01501 01502 01804 03120* 04008 04014 04045 04046
04048 04823 04825 04828 05143 05835 07190 07191
08549 05842 05843
ULCERATIVE COLITIS IMMUNOLOGY
00224* 00630* 00631 01491* 01493* 01494* 01502
ULCERATIVE COLITIS IN CHILDREN
00633 03117* 04045 04821 04826 05835 05836 07187
08512
ULCERATIVE COLITIS PATHOLOGY
00635 01472 01499 01500 01745 01804 02300 02301
03116* 03120* 03127 04008 04045 04818* 04825 05747
05832* 05840 05843 07183* 07184*
ULCERATIVE COLITIS RADIOLOGY
02300 05837
ULCERATIVE COLITIS SURGERY
00634 00636 01493* 01494* 01497* 01804 02301 03117*
03119* 03122 03123 03127 04041* 04049 04706 04708*
04765* 04826 05832* 05838 05843 06942* 06987 08550
08552 08554 08558
ULCERATIVE COLITIS TREATMENT
00594 00628* 00633 00634 00636 00637 00638 00977
00993 01492* 01496* 01498 01501 01721* 01804 02300
02301 03117* 03125 03127 03376 04048 04049 04708*
04819 04820 04822 04824 04826 04827 05752 05832*
05845 06367 07186 07187 07188 07625 08550 08552
08554 08555 08556 08557 08558
ULCERATIVE COLITIS,BIOCHEMICAL DIAGNOSIS OF
00562* 01494*
ULCERATIVE COLITIS,CIRCULATION IN
01492*
ULCERATIVE COLITIS,CLINICAL STUDIES OF
02297* 03123 04041* 04828
ULCERATIVE COLITIS,DISEASES ASSOCIATED WITH
00624 00627* 00629* 00638 01494* 02297* 02299 03118*
03121 03122 03127 04043* 04046 04821 07185
ULCERATIVE COLITIS,DRUG TREATMENT OF
00634 05832* 05846 04828 07188
ULCERATIVE COLITIS,IMMUNOLOGY IN
05741* 07098*
ULCERATIVE COLITIS,METABOLIC CHANGES IN
01449* 04042* 05841 08548*
ULCERATIVE COLITIS,MICROORGANISMS IN
01491* 04823
ULCERATUVE COLITIS ETIOLOGY
03118*
ULCERS
SEE ALSO ANTACIDS
SEE ALSO ANTICHOLINERGIC AGENTS
SEE ALSO DUODENUM
SEE ALSO GASTRECTOMY
SEE ALSO ULCERATIVE COLITIS
00358* 01450* 03351 08369
ULCERS IN CHILDREN
05674 08517
ULCERS IN CHILDREN,PEPTIC
00277 00485 01322 01415 01778 01811 02026* 04556*
04741 05701 05703 06549 07000* 07028 08353 08381
08960
ULCERS TREATMENT,PEPTIC
05685
ULCERS,AGE FACTORS IN
01405 02195* 08368
ULCERS,AGE FACTORS IN PEPTIC
03016* 03024 03033 08346
ULCERS,ANASTOMOTIC
01251
ULCERS,ANASTOMOTIC PEPTIC
00417 00468* 00493 00507 02098* 05673 07008*
ULCERS,BLEEDING PEPTIC
00235* 00472* 00488 00491 00502 00505 00515 00933
01297 01407 01413 01627* 01730* 01782 02098* 02115
02199* 02203 02209 02214 02215 02584 02585 03011*
03012* 03351 03919* 03926* 03937 04203* 04714* 04725
04726 05029* 05033* 05668* 05684 06765 07026 08380
08389 08392 08865 08897* 08900
ULCERS,CIRCULATION IN PEPTIC
02685
ULCERS,CLINICAL STUDIES OF PEPTIC
07033
ULCERS,DISEASES ASSOCIATED WITH
00358* 08379
ULCERS,DISEASES ASSOCIATED WITH PEPTIC
00072* 00316* 00380 00506 01090* 01321* 01394* 01411
02191* 02511 02937 03029 03918* 03931 04154* 04726
05705 05860 05874 06898 07013* 08223 08375
ULCERS,DRUG TREATMENT OF
00471* 00473* 00477* 00487 00510 00512 00518 01393*
01397* 01401 01409 01412 01418 02205 02678* 02899*
02998* 02999* 03000* 03001* 03003* 03025 03917* 03934
03935 03936 03940 03941 04359* 04729 05670 05707
06537* 07001* 07035 07048 08337* 08351 08360 03939
ULCERS,DRUG TREATMENT OF PEPTIC
03927* 08384 08385 08391
ULCERS,DRUG-INDUCED
00377 00432* 00435* 00504 00509 01306* 01307* 01397*
01627* 01723* 01810 02213 02899* 03034 03456* 03917*
03931 04359* 04675* 05386 05689 05706 06053* 06922
07041 07566 07724* 08335*
ULCERS,DUODENUM
00107 00250 00316* 00344 00396 00404 00438* 00469*
00475* 00477* 00479* 00480* 00481* 00482* 00490 00499
00501 00503 00505 00508 00509 00510 00511 00514
00992 01069* 01097* 01202* 01249 01387* 01388* 01388*
01394* 01395* 01396* 01399* 01404 01410 01412 01414
01416 01418 01420 01421 01526 01811 01882* 01899
02026* 02031* 02047 02090 02109 02189* 02190* 02192*
02193* 02195* 02198* 02199* 02200* 02201 02202 02214
02219 02220 02221 02222 02224 02225 02511 02599
02780 02789 02925 03005* 03006* 03007* 03011* 03012*
03014* 03019 03021 03023 03026 03027 03028 03031
03032 03033 03269 03284* 03351 03616* 03819 03834
03856 03882 03915* 03916* 03921* 03922* 03924* 03928*
03929 03930 03933 03934 03935 03938 03944 03945
03946 03947 03949 04084* 04362* 04376 04384 04556*
04647 04650 04712* 04713* 04714* 04715* 04716* 04719
04720 04721 04722 04727 04729 04730 04731 04732
04734 04736 04737 04738 04739 04852* 05063 05164*
05199 05227* 05228* 05237* 05242 05416 05418 05419
05475 05554 05555 05564 05583 05664* 05671 05672
05675 05676 05677 05678 05682 05683 05685 05686
05689 05693 05694 05696 05701 05702 05703 05705
05707 05862 05870 05874 06061 06235* 06274 06311
06733 06737 06739 06822 06923 06931 06937 06960
06996* 06998* 07003* 07005* 07013* 07014* 07017 07019
07022 07025 07031 07037 07039 07040 07042 07043
07047 07049 07050 07052 07053 07220 07482 07849*
08168 08190 08208 08331* 08332* 08333* 08335* 08336*
08339 08341 08342 08344 08345 08349 08354 08355
08356 08358 08359 08360 08362 08363 08365 08366
08370 08372 08374 08380 08387 08391 08396 08397
08398 08399 08400 08446* 08667 08684 09022 07011*
07051 08361
ULCERS,ESOPHAGUS
01276* 01279* 01297 02225 03351 03734* 03737* 03746
03892 04046 04634 05504 05715 06914 08437*
ULCERS,EXPERIMENTAL
00022 00375 00478* 00483 00517 01089* 01389* 01392*
01397* 01405 01406 01416 02187* 02200* 02213 02673*
03001* 03010* 03466* 03917* 04356* 04359* 04504* 05143
06289 07994*
ULCERS,FREEZING TREATMENT OF PEPTIC
00409 00411 02098* 08329*

ULCERS,GASTRODUODENAL
06997* 07049 07651
ULCERS,GASTROINTESTINAL
08517
ULCERS,HORMONAL CONTROL OF PEPTIC
00476* 03030 06387
ULCERS,LARGE INTESTINE
01450* 02226 03097 05698 05706 07152 07189 08357
08517 08551
ULCERS,METABOLIC CHANGES IN PEPTIC
00476* 00481* 02345* 05691
ULCERS,NONSPECIFIC
01450*
ULCERS,NONSPECIFIC LARGE INTESTINE
05840
ULCERS,NONSPECIFIC SMALL INTESTINE
00435* 00465 01258 01350* 01382 02171 05671 08352
ULCERS,PEPTIC
00048* 00271 00340 00353* 00359* 00396 00495 00750
01287 01340 01505* 01512 02218 02225 02226 02682*
02780 02872 02995 03017 03023 03026 03030 03206
03351 03355 03378 03453* 03657 03915* 03921* 03925*
03930 03931 04154* 04353* 04543* 04644 04709* 04719
04727 05073 05582 05647 05679 07015* 07021 07027
07042 07851* 07855* 07857* 08339 08342 08357 08383
08393 08446*
05662* 05666* 05667* 06790* 06909 06998* 07004* 07007*
07008* 07009* 07010* 08225
ULCERS,PERFORATED PEPTIC
07038
ULCERS,RECTUM
03097 06973
ULCERS,RECURRENT
08357
ULCERS,SIMPLE NONSPECIFIC
SEE NONSPECIFIC ULCERS
ULCERS,SMALL INTESTINE
00432* 02226 03014* 04675* 04712* 05706 05724 07016
08261 08291
ULCERS,STOMACH
00227* 00250 00358* 00367* 00377 00396 00418 00470*
00473* 00478* 00482* 00483 00486 00490 00495 00498
00504 00505 00508 00513 00517 01089* 01262 01307*
01309* 01321* 01387* 01389* 01390* 01392* 01394* 01400
01405 01407 01412 01416 01419 01420 01724* 01730*
01760 01766 01811 01900 02031* 02090 02103* 02114
02131 02139 02195* 02202 02203 02204 02214 02216
02220 02221 02222 02225 02226 02227 02422 02599
02685 02780 02913* 02937 02941 03004* 03005* 03006*
03007* 03008* 03010* 03011* 03013* 03014* 03017 03018
03019 03026 03027 03029 03030 03031 03032 03033
03034 03050 03284* 03351 03456* 03466* 03614* 03689
03718 03834 03835 03856 03892 03915* 03921* 03922*
03929 03930 03932 03933 03934 03935 03942 03943
04062 04084* 04207* 04274* 04353* 04356* 04359* 04371
04384 04495* 04504* 04542* 04634 04647 04648 04650
04713* 04714* 04715* 04716* 04717 04719 04720 04721
04722 04725 04726 04727 04728 04729 04730 04733
04736 04740 04741 05063 05164* 05199 05225* 05227*
05228* 05246 05416 05527 05564 05573 05578 05583
05587 05663* 05670 05672 05674 05676 05678 05682
05683 05685 05689 05693 05699 05701 05702 05704
05706 05708 05927 06061 06235* 06295 06534* 06733
06751 06865* 06898 06914 06915 06920 06922 06923
06930 07001* 07003* 07011* 07013* 07015* 07016 07019
07020 07025 07029 07031 07035 07041 07042 07043
07044 07046 07047 07049 07408 07482 07834* 07855*
07860 07994* 08060 08074* 08092 08156 08158 08190
08208 08324* 08325* 08335* 08336* 08340 08341 08349
08354 08355 08356 08359 08360 08362 08363 08365
08367 08368 08371 08372 08373 08374 08383 08388
08391 08396 08446* 08897* 08936 08983 09022
ULCERS,STRESS FACTORS IN
00063* 00478* 00508 00517 01089* 01390* 01405 02187*
02195* 02204 02207 03010* 03034 03917* 03931 04351
04511* 04713* 04716* 04727 05223* 05225* 05228* 05663*
05668* 05689 05700 06999* 07000* 07010* 07014* 07040
07053 07605 08328* 08364 08391 08549
ULCERS,SURGICAL TREATMENT OF
08389
ULTRASOUND
00275 02011* 02029* 02418*
ULTRASOUND IN DIAGNOSIS
06713* 06734 07989*
ULTRASTRUCTURE
02625* 03168* 01855

ULTRASTRUCTURE,DUODENUM
01024* 05134
ULTRASTRUCTURE,ESOPHAGUS
01298 02638 04615
ULTRASTRUCTURE,GALLBLADDER
03477
ULTRASTRUCTURE,GASTROINTESTINAL
00954 01034 01815* 02632 04287
ULTRASTRUCTURE,LARGE INTESTINE
03454* 04290 07132 07171 07759 07760 07787 08464
ULTRASTRUCTURE,LIVER
00001* 00115* 00116* 00127* 00145 00149 00150 00151
00156 00160 00164 00166 00167 00168 00169 00172
00175 00260 00688* 00695* 00696* 00698* 00729 00736
00764 00766* 00767* 00768* 00769* 00770* 00772* 00773*
00774* 00784 00785 00791 00836 01014* 01026* 01030
01032 01144* 01154 01155 01157 01158 01159 01161
01551* 01572 01574 01583 01606* 01608 01625* 01635
01655* 01823 01825 01832 01833 01836 01838 01926*
01931 01949 01958 01966 01971 01974 02374 02405
02419* 02420* 02424 02457* 02475* 02486 02490 02618*
02639 02694* 02717 02718 02726 02728 02729 02852
03126 03167* 03185 03186 03187 03194 03204 03222
03227 03447* 03452* 03475 03558 03559 03562 03564
03569 03578 03581 03583 03584 03585 03586 03587
04105 04112 04129 04130 04272* 04281* 04285 04291
04292 04293 04308 04451 04453 04466 04470 04472
04887 05106* 05110* 05113* 05114* 05119 05120 05127
05128 05130 05145 05290* 05312 05336 06015 06023
06052* 06056* 06108 06115 06396* 06400* 06401* 06404*
06405* 06406* 06407* 06409* 06411* 06415 06416 06421
06425 06433 06436 06438 06451 06457 06470* 06572*
06575* 06578* 06631 06635 07249* 07260 07367* 07387
07427* 07487 07742 07743 07746 07747 07754 07755
07758 07764 07771 07936 07940 07941 07956 08628*
08663 08668 08670 08729* 08742 08756* 08759
ULTRASTRUCTURE,PANCREAS
00019 01011* 01115 01816* 01916 02319* 02636 05102*
05103* 05104* 06398* 06431 06558 07526* 07528* 07725*
07754 05105*
ULTRASTRUCTURE,PERITONEUM
07586 07607
ULTRASTRUCTURE,SALIVARY GLAND
02571 06463
ULTRASTRUCTURE,SMALL INTESTINE
00447 00532 00533 01012* 01024* 01028 01037* 01177*
01179* 01822* 01829 01830 02148* 03454* 03705 03878
03899 04266* 04289 05125 05446 06397* 06402* 06403*
06413* 06430 06452 06453 06462 07078 07625 07719*
07726* 07728* 07735* 07751 07753 07760 07763 07787
08303
ULTRASTRUCTURE,STOMACH
00005* 00006* 00007* 00008* 00011* 00018 00022 00406
01095* 01315* 01344 01820* 01838 02637 05116* 06402*
06403* 06449 06531* 07625 07752 08056 08137*
UREA
00927
UREA METABOLISM,LIVER
00226* 00732 01149* 01150* 01973 04321* 05306
URINARY BILE METABOLITES
00694* 01711 08769
URINARY ENZYMES
00209*
URINE
02553* 07679
URINE METABOLITES
05691

VAGOTOMY
00080* 00082* 00086* 00308* 00309* 00334 00362* 00363*
00463 00469* 00470* 00479* 00480* 00482* 00497 00498
00500 00501 00503 00514 00516 00844* 01069* 01072*
01082* 01083* 01107 01109* 01112* 01202* 01254 01255
01272* 01279* 01280* 01287 01294 01306* 01308* 01316*
01328 01334 01337 01388* 01388* 01391* 01396* 01398*
01399* 01403 01404 01414 01417 01421 01422 01425
01700 01733* 01760 01811 01863* 01870 01879* 01894*
01902 01911* 01913* 02025* 02111 02113 02119 02120
02146* 02186* 02190* 02192* 02193* 02194* 02197* 02198*
02199* 02201 02212 02214 02217 02221 02584 02614
02633 02879 02880 02924 02925 02926 02949 02949
03006* 03007* 03008* 03017 03018 03020 03021 03022
03024 03026 03030 03137 03304 03370 03496* 03510*
03525 03527* 03757 03836 03916* 03920* 03921* 03924*
03938 03944 03945 03946 03947 03948 03949 04631*
04713* 04714* 04718 04723 04730 05108* 05186* 05188*
05199 05200 05242 05243 05386 05475 05548 05549
05554 05593 05594 05664* 05673 05675 05678 05682
05683 05687 05690 05693 06222 06274 06332 06381
06441 06504* 06506* 06518 06555* 06571* 06704 06739
06793* 06815 06822 06885 06937 06947 06998* 07002*
07003* 07004* 07007* 07009* 07016 07017 07018 07046
07050 07052 07818 07823 08064* 08161 08209 08243
08327* 08328* 08331* 08332* 08333* 08338* 08344 08361
08372 08376 08377 08378 08387 08394 08395 08398
08399 08400 08834*
VALVE,ILEOCECAL
00442 00445 01349* 01354* 02064* 03880 04694 06984
07813* 07814*

VARICES,ESOPHAGUS
00230* 00312* 00346 00347 00708* 00752 00755 00827*
00831 00933 01198* 01256 01289 01291 01293 01605
01652* 01661 01673 01733* 02003* 02066* 02077 02373
02471* 02477* 02478 02585 02779 02848 02885 03286*
03351 03652 03735* 03738* 03764 03767 03794* 04203*
04542* 04607 04867* 04964* 04965* 04967 05029* 05033*
05435 05479 05487 05489 05499 05908* 05924* 06027
06067 06096* 06106 06112 06124 06341 06765 06796*
06811 06821 06828 06839 06843 06844 06917 07330
07439 07454 08065* 08069* 08244* 08667 08677 08784*
VARICES,STOMACH
01256 03351
VASCULAR DISEASES
05919* 06920 07341 07599 08189
VASCULAR DISEASES,MESENTERY
00866* 00901* 00923 00931 00952 00962 00968 01355*
01799 02145* 02282 02572 03324* 03325* 03353 03418
03675 04010 04250 05378* 06054* 06252 06317 06977
06980 07542 07583 07628 08280 08452 08891*
VASCULAR SURGERY
02384 02385 02409 02471* 03324* 03381 03409 03417
03810 04774 05566 06252 06705
VILLOUS GASTROINTESTINAL NEOPLASMS
05618
VILLOUS LARGE INTESTINE NEOPLASMS
00611 03970* 07172
VILLOUS RECTUM NEOPLASMS
00591
VIRAL HEPATITIS
00805 01559 01563 01636 01638 02455* 02465 02466
02469 02622* 03157* 03166* 03203 03211 03234* 03245
03250 03251 03255 03257 03441 04080* 04097 04108
04113 04138* 04139* 04141 04142 04144 04272* 04275*
04946* 04949 04956 04957 05119 05916* 05926* 05931
05936 05981 06006 06057 06070 06075* 06079* 06081
06083 06090 06150 07201 07261 07339 07351 07396
07399 07404 07418 07445 08368 08623* 08668 08759
08772 08777 08780
VIRAL HEPATITIS COMPLICATIONS
02452* 02476* 03232* 03260* 04910 06084 07391* 07397
07413 07414 07452 08762 08754*
VIRAL HEPATITIS DIAGNOSIS
00201* 00202* 00232* 00259 00279 00803 00806 00807
00811 01209* 01218* 01221 01534* 01604 01628* 01631
01643 01644 02461 02466 02467 03233* 03235* 03459*
03468* 03633 03643 03666 03706 04135* 04139* 04145
04557* 04945* 04948 05404* 05409 05425 06040 06088
06747 06769 07256* 07392* 07393* 07400 07401 07407
07410 07412 07419 07992* 08008* 08012 08044 08627*
08751* 08752* 08756* 08758 08768
VIRAL HEPATITIS EPIDEMIOLOGY
00794* 00795* 00796 00797 00804 00809 00810 00812
00814 01221 01626* 01629* 01631 02461 02462 02463
02464 02467 03239* 03241 03247 03252 03253 03254
03256 03643 04136* 04143 04146 04153* 04945* 04947*
04948 04954 06029 06078* 06085 06086 06088 07311
07400 07405 08627* 08757 08758 08760 08761 08767
08771 07398
VIRAL HEPATITIS ETIOLOGY
00797 03451* 06082 06091 06587* 07263 07356 07392*
07411 07422 07720* 07722* 08766 08769
VIRAL HEPATITIS IMMUNOLOGY
00793* 00794* 00800 00804 00806 00816 01535* 01552*
01626* 01628* 01644 03240* 03241 03451* 03459* 03649
04134* 04273* 04945* 04948 04950 05095* 05409 06082
06091 07244* 07247* 07389* 07402 07409 07720* 07722*
08627* 08764 08771
VIRAL HEPATITIS IN CHILDREN
00792* 00796 00799 01626* 01639 01640 01641 01778
02453* 03245 04557* 04906 04950 04953 05950 07390*
07403 07415 07420 07421 08012 08751* 08769 08770
08771 08773 08776 08778 08956
VIRAL HEPATITIS PATHOLOGY
00698* 00801 00811 01635 01643 02342* 02457* 02458*
03232* 03247 03249 03263* 04135* 04145 04272* 04303
04953 04958 05114* 06087 07393* 07413 07422 08722
08752* 08756* 08764 08779
VIRAL HEPATITIS PROPHYLAXIS
00795* 00797 00810 00812 00813 00814 01626* 01629*
01645 02461 02462 02463 02464 02467 02814 03254
03256 04139* 04146 04147 04945* 04948 04955 06073*
06085 06086 07409 08761 08767 08771
VIRAL HEPATITIS TREATMENT
00792* 00797 00798 00799 00803 00808 00812 00813
00814 00815 01625* 01627* 01630* 01632 01637 01640
01645 01721* 02363 02468 03237* 03248 03254 03255
04147 04148 06073* 06084 06087 06088 07321 07405
07406 07408 07416 08763 08765 08769 08755*
VIRAL HEPATITIS,ACUTE
00232* 00792* 00793* 00800 00808 01221 01642 02356
02452* 02460* 02468 02787 03240* 04140 04147 04562
05131 07391* 07394* 07395* 07411 07417 07452 08752*
08753* 08779
VIRAL HEPATITIS,CHRONIC
03262* 03263* 04148 04562 04951 04952
VIRAL HEPATITIS,DISEASES ASSOCIATED WITH
00746 00801 00802 00809 01225 01632 01633 02458*
03234* 03238* 03248 04123 04910 04950 05409 06076*
07403 07494 08768

VITAMIN A
00151 00153 01179* 02436 02473* 02579 04447 04851*
05030* 05210 05302 06328 07545 08028 08642*
VITAMIN A ABSORPTION
SEE ALSO CAROTENE ABSORPTION
00558 02025* 02246 05158* 05166* 05211 06650
VITAMIN ABSORPTION
00040 00088 00195 00520* 00530* 00540 00549 00552
00556 00558 00560 01044* 01052 01327 01852 02015*
02025* 02246 02247 02645 02650 03059 03209 05145
05517* 05602* 05729 05730 05869 07077 07639
VITAMIN B
01977 05528 08795
VITAMIN B COMPLEX
00195 01133* 01412 05030* 05064 06328 07738 07925
VITAMIN B COMPLEX ABSORPTION
04999

VITAMIN B12
00724 02108 04468 05111* 05529 05803 06349 06547
06913 07321 07959* 08197 08235
VITAMIN B12 ABSORPTION
00088 00195 00393 00520* 00530* 00554 01054 01066
01327 01847* 01852 02015* 02109 02247 02645 03059
03523 04324* 04358* 05153 05165* 05517* 05526 05729
06465* 06471* 06864* 06866* 08301 03051 07639
VITAMIN B12 IN LIVER
00120* 04469
VITAMIN B12 IN MALABSORPTION TREATMENT
03814
VITAMIN C
00151 00152 00517 01029 05064 06328 06579* 06649
07234* 08808
VITAMIN C ABSORPTION
01049*
VITAMIN D
02579 03598 04319* 04419* 06493 08692
VITAMIN D ABSORPTION
00549 04330 05179
VITAMIN DEFICIENCIES
00767* 00829* 00990 01142* 01803 08180 08197 08990
07925
VITAMIN DEFICIENCIES IN MALABSORPTION
00393 00552 00560 03967 06475*

VITAMIN E
00753 00759 06606
VITAMIN K
00457 01548* 01813 02969 03416 03487* 03608* 05208*
VITAMIN K ABSORPTION
00549
VITAMIN METABOLISM
01066
VITAMIN METABOLISM,LIVER
06598*
VITAMINS
SEE ALSO ABSORPTION
SEE ALSO LIVER
SEE ALSO MALABSORPTION
00545 02108 02127 02223 02358 02363 02562 03573
03574 04412* 04510* 04851* 05145 05160* 05161* 05309
05369 06466* 06475* 06577* 06598* 06653 07930 08824
VOLVULUS
01355* 02798
VOLVULUS ETIOLOGY
00617
VOLVULUS SURGERY
01363 01459 02959* 03064* 04002 05613 05802 08447*
VOLVULUS,GALLBLADDER
02518
VOLVULUS,GASTROINTESTINAL
02572
VOLVULUS,LARGE INTESTINE
00569 00574 00607 01459 02543* 02959* 03064* 03070*
03989 04002 04547* 05777 05802 07110 07121 08447*
08457 08469 08505 08507
VOLVULUS,SMALL INTESTINE
00429* 01363 02145* 02959* 02960* 03638 03890 04685
05597* 05646 06340 06358 06952 06953 08281 08301
08447*

VOLVULUS,STOMACH
03830 04671 05530 05565 08185 08201
VOMITING
00342 00391 00398 00408 00412 00413 00805 00935
00981 01707 01743 01756 01757 01779 02041 02044
02076 02127 02444 02559 02561 02562 02573 02574
02575 02576 02577 02578 02579 02882 02946 02973
03151 03298 03336 03339 03794* 03815 03818 03890
03893 04053* 04256 04258 04341 04599* 04612 05026*
05062 05484 05608 05705 05728 06054* 06198 06245
06254 06329 06368 06532* 06790* 06810 06838 06841
07558 07574 07818 08249* 08329* 08474 08681 08949
VOMITING IN CHILDREN
01322 04596* 05042

WATER ABSORPTION
00027* 00039 01052 01061 01063 01064 01259 01437
01760 01849* 02255* 02646 03423 04265* 04309* 04490*
04518 04830* 05603* 06498 06652 06653 07781*
WATER METABOLISM
02578
WATER METABOLISM IN CIRRHOSIS
00830 01650*
WATER METABOLISM,GASTROINTESTINAL
01143* 01326 01656 01939 02130 02592 02594 03362
05222
WHIPPLES DISEASE
00449 00532 00533 00541 00543 01197* 01379 01442
02246 03039* 03403 03968 04008 05731 07093 08418
08422 08427
WILSONS DISEASE
SEE ALSO HEPATOLENTICULAR DEGENERATION
01842* 04275* 05115* 05903* 07462 07783* 07899* 08621*
08637*
WOUND HEALING
00564* 00891* 00928 01805

XYLOSE ABSORPTION
00262 00520* 00554 01215* 03200 03495 04317* 05154*
05395* 06481* 06767
XYLOSE IN MALABSORPTION DIAGNOSIS,D
00262 00554 00555 01215* 02149* 02815 03044* 03048
03259* 03425 04201* 05024* 07064* 05602*

ZENKERS DIVERTICULUM
03747
ZIEVES SYNDROME
00671 01618 02481 02493 05984 06094* 07456
ZINC
01267 06467*
ZINC ABSORPTION
04868* 06638 06677
ZINC METABOLISM
06099* 06924
ZINC METABOLISM,LIVER
00928 01980 04429* 04868*

ZOLLINGER-ELLISON SYNDROME
00532 00911 00942 00949 00953 01402 01742 01752
01760 01766 01767 01774 01775 02614 03378 03402
03439 03518* 04207* 04229 04849 05063 05242 05677
05853 05858 05864 05870 06244 07526* 07644 08339
08577 08905 08983 05860 08936 06295

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02682* 06755 07106*
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